





Radial

Unmounted bearing assembly consisting of through hardened inner and outer raceways with cylindrical rolling elements separated by steel, brass or cast iron retainers (cage). The retainer can be land or roller riding depending on the type of inner and outer raceway flange configuration. Radial roller bearings provide an antifriction solution when supporting rotating shafts with radial loads.

Bearing Configurations

Separable Or Non-Separable Inner/Outer Raceway

Flange Styles

Single, Double, Loose Flange

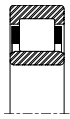
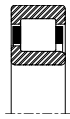
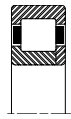
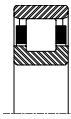
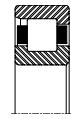
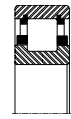
Bore Diameter Size Range

30 mm to 440 mm (1.181" to 17.323")

Materials

Bearing Quality Steel

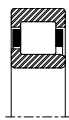
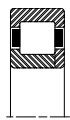
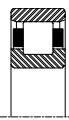
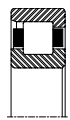
Radial Selection Guide

			FLANGE PICTORAL						Size Range
									
		Description	Inner Race Separable, both Directions	Inner race separable, one direction	Two piece inner race, four flange design	Outer race separable in both directions	Outer race separable, one direction	Non separable	
	ISO	NU-xxxx-E	X						35mm - 140mm
	Tru-Rol	E-xxxx-U	X						30mm - 280mm
	Tru-Rol	E-xxxx-B	X						30mm - 160mm
	Max	MUC-xxx	X						140mm - 440mm
	ISO	NJ-xxxx-E		X					35mm - 140mm
	Tru-Rol	L-xxxx-U		X					30mm - 300mm
	Max	MUL-xxxx		X					140mm - 440mm
	Tru-Rol	U-xxxx-B						X	30mm - 150mm

*For estimating purpose only, individually sizes may vary and are subject to change without notification



Radial Selection Guide

			FLANGE PICTORAL						
									
		Description	Inner Race Separable, both Directions	Inner race separable, one direction	Two piece inner race, four flange design	Outer race separable in both directions	Outer race separable, one direction	Non separable	Size Range
	ISO	N-xxxx-E				X			35mm - 140mm
	Tru-Rol	U-xxxx-E				X			30mm - 300mm
	Max	MCS-xxxx				X			140mm - 440mm
	Tru-Rol	U-xxxx-L					X		30mm - 300mm
	Max	ML-xxxx					X		140mm - 440mm
	ISO	NUP-xxx-E			X				35mm - 140mm
	Tru-Rol	LP-xxxx-U			X				30mm - 300mm
	Max	MU-xxxx			X				140mm - 440mm

*For estimating purpose only, individually sizes may vary and are subject to change without notification





DESIGN CHARACTERISTICS				Features						
Radial Load	Thrust Load	High Speed	Relative Base Cost *	Stamped Steel Retainer	Segmented Steel Retainer	Two Piece Brass Retainer	One Piece Brass Retainer	Full complement of Rollers / no retainer	Radial Clearances Greater/less than standard	Page No.
			\$\$	Opt	Opt	S	Opt	N/A	Opt	E-16
			\$	Opt	S	Opt	Opt	N/A	Opt	E-16
			\$\$	Opt	Opt	S	Opt	N/A	Opt	E-28
			\$	Opt	S	Opt	Opt	N/A	Opt	E-16
			\$\$	Opt	Opt	S	Opt	N/A	Opt	E-28
			\$\$	Opt	Opt	S	Opt	N/A	Opt	E-16
			\$	Opt	S	Opt	Opt	N/A	Opt	E-16
			\$\$	Opt	Opt	S	Opt	N/A	Opt	E-28

Low Speed

Medium Speed

Medium to High Speed

Land Riding, High Speed.

Higher Capacity / Lower Speed

For Specific Applications

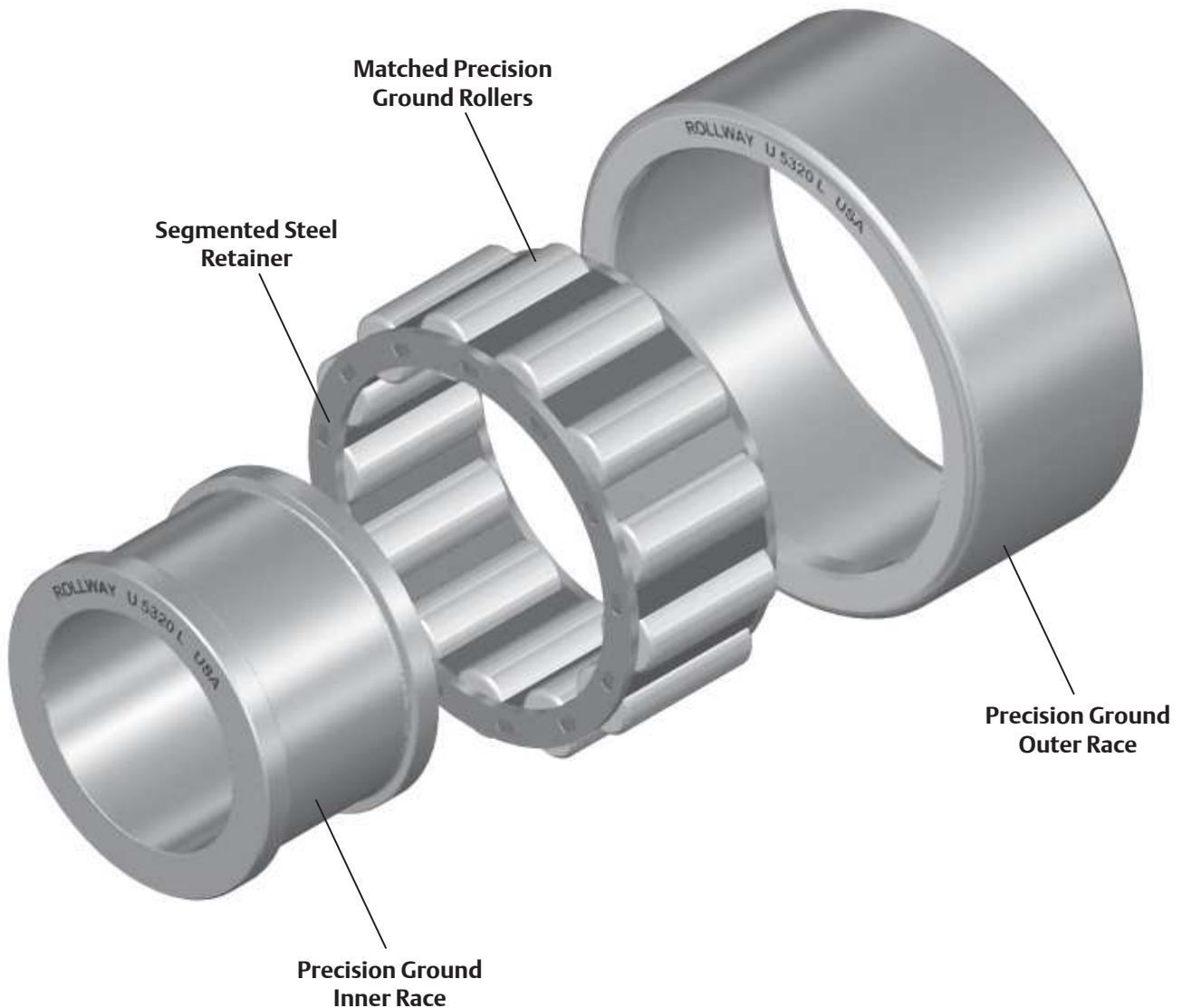
Opt = Optional
S = Standard
○ = Not Recommended

Poor ← → **Best**

ROLLWAY® *Radial Bearings*

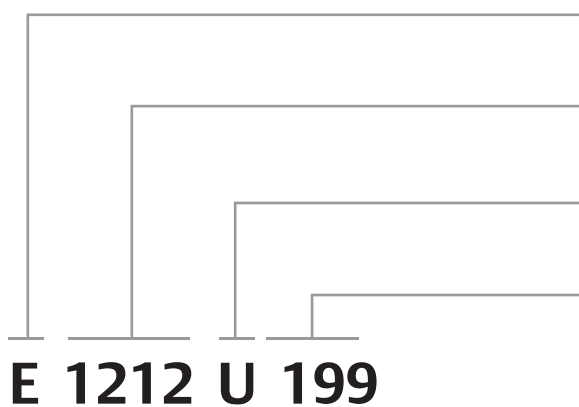
Rollway Radial Roller Bearings

Rollway Radial bearings utilize crowned cylindrical rollers for more dynamic capacity and longer life than comparable ball bearings. These bearings also feature through hardened bearing quality steel raceways and a variety of retainer (cage) options depending on the load/speed requirements of the application (Rollway radial roller bearings are available with standard clearance, as well as clearance ranges greater and less than standard, in order to accommodate application requirements). Depending on your preference, these bearings are available in a wide variety of sizes and options as illustrated on the pages to follow.





Rollway Radial Roller Nomenclature TRU-ROL Numbering



Prefix

Inner Race Description

Size Designator

Available Series

Suffix

Outer Race Description

Variation Code

Variation Codes Are Divided Into Two Categories; Special And Standard.

Prefix

- E** - Inner Race Separable Both Directions.
- L** - Inner Race Separable One Direction.
- LP** - Two-Piece Inner Race, One Part Is Separable One Direction, The Other Is A Thrust Plate To Form A Channeled Race Assembly.
- U** - Inner Race With Two Flanges, Non-Separable.
- UM** - Inner Race With Two Flanges, Non-Separable, Full Complement Of Rollers.
- None** - No Inner Race Supplied.

Separable.

Variation Codes

Special variation codes

101 to 129 - are numerically assigned codes that designate the variation from standard (example 101 = 1st variation, 102 = 2nd variation, etc.). These bearing code numbers do not in any way reference the modification from standard. Application Engineering must be contacted for information concerning a particular modification.

Size Designator

Available Series; 1000, 1200, 1300, 5200, 5300 And 6200.

Standard variation codes

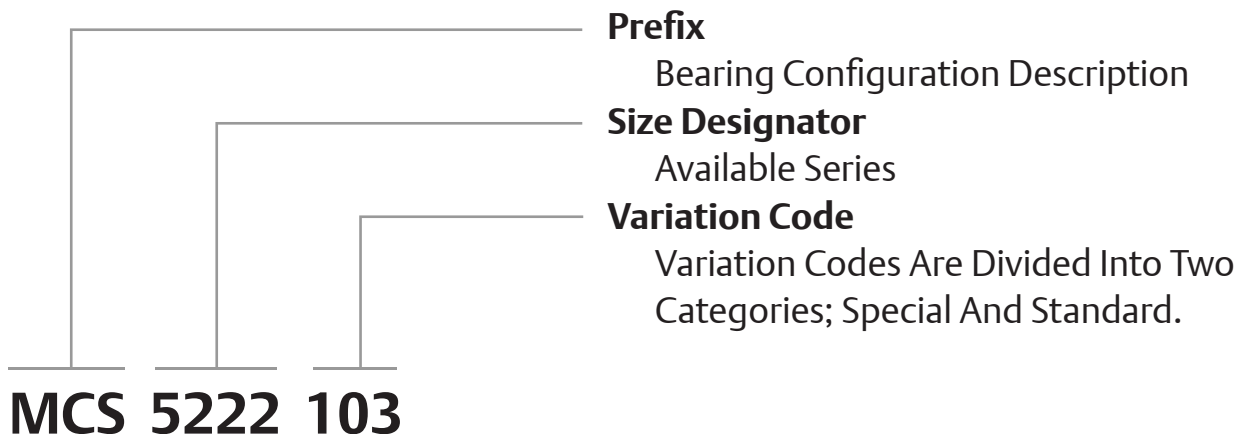
001 to 099 and 130 to 199 - are code numbers representing standard modifications. The most popular are listed below:

- **K** - Over sized OD.
- **003** - Rollway internal clearance Class 3.
- **005** - Rollway internal clearance Class 5.
- **007** - Rollway internal clearance Class 7.
- **019** - Outer race with SAE ring groove around OD.
- **027** - Outer race with blind hole or locating slot in outer race.
- **191** - Broached retainer.
- **199** - Bearing with SAE ring groove on OD and snap ring furnished.

Suffix

- E (EMR)** - Outer Race Separable Both Directions.
- L (LMR)** - Outer Race Separable One Direction.
- LP (LPMR)** - Two-Piece Outer Race, One Part Is Separable One Direction, The Other A Thrust Plate To Form A Channeled Race Assembly.
- U (UMR)** - Outer Race With Two Flanges, Non Separable.
- B** - Outer Race With Two Snap Rings To Retain The Roller Set, Non-Separable.
- J** - Outer Race With One Snap Ring And One Flange To Retain The Roller Set, Non

Rollway Radial Roller Nomenclature MAX Numbering



Prefix

ML - Bearing assembly with roller assembly retained in inner race, outer race separable one direction.

MCS - Bearing assembly with roller assembly retained in inner race, outer race separable both directions.

MN - Bearing assembly with roller assembly retained in inner race. Two-piece outer race, one part is separable one direction, the other is a thrust plate to form a channel race.

MS - Bearing assembly with roller assembly retained in inner race. Outer race with two snap rings to retain the roller set, non-separable.

M - Bearing assembly with roller assembly retained in inner race. Outer race with two snap rings to retain the roller set, non-separable with a full complement of rollers.

MUC - Bearing assembly with inner race separable both directions. Roller assembly retained in outer race.

MUL - Bearing assembly with inner race separable one direction. Roller assembly retained in outer race.

MU - Bearing with a two-piece inner race, one part is separable one direction, the other is a thrust plate to form a channeled race. Outer race retains the roller assembly.

MR - Bearing with a two-piece inner race, one part is separable one direction, the other is an HJ ring to form a channel race. Outer race retains the roller assembly.

Size Designator

Available series; 100, 200, 300, 5000 and 5100.

Variation Codes

Special variation codes

101 to 199 - are numerically assigned codes that designate the numerical variation from standard (example 101 = 1st variation, 102 = 2nd variation, etc.). These bearing code numbers do not in any way reference the modification from standard. Application Engineering must be contacted for information concerning a particular modification.

Standard variation codes

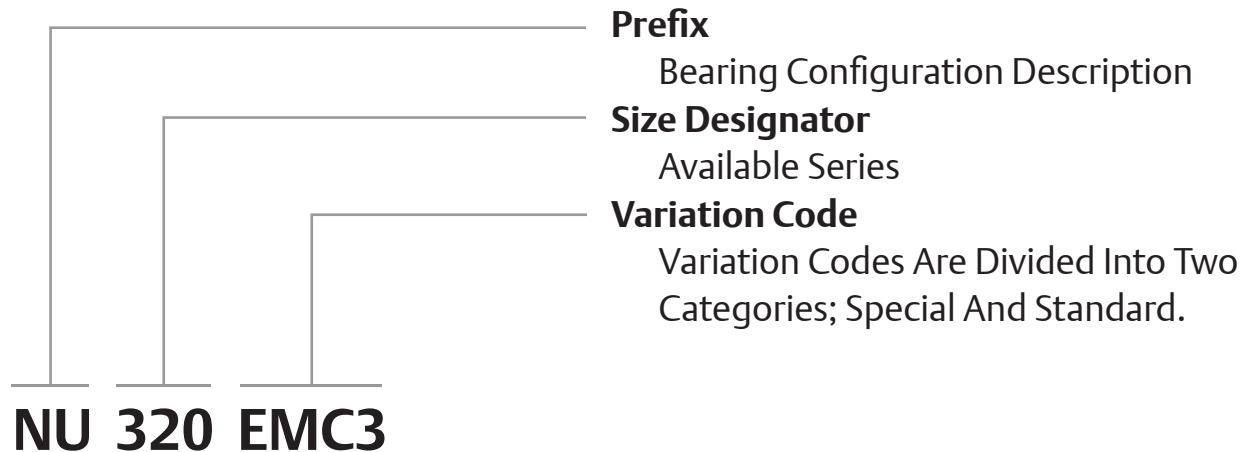
001 to 099 - are code numbers representing standard modifications. The most popular are listed below:

- **003** - Rollway internal clearance Class 3.
- **005** - Rollway internal clearance Class 5.
- **007** - Rollway internal clearance Class 7.



Rollway Radial Roller Nomenclature

ISO Numbering



Prefix

NU - Bearing assembly with inner race separable both directions. Roller assembly retained in outer race.

NUP - Bearing with a two piece inner race, one part is separable one direction, the other is a thrust plate to form a channeled race. Outer race retains the roller assembly.

NJ - Bearing assembly with inner race separable one direction. Roller assembly retained in outer race.

N - Bearing assembly with roller assembly retained in inner race. Outer race separable both directions.

Standard variation codes

Are code numbers representing standard modifications. The most popular are listed below:

- **E** - Extra capacity design
- **M** - Machined brass retainer
- **C2** - ABMA internal clearance symbol 2
- **C3** - ABMA internal clearance symbol 3
- **C4** - ABMA internal clearance symbol 4
- **S1** - Bearing is stabilized for operation at 390°F

Size Designator

Available series; 200, 300, 2200 and 2300.

Variation Codes

Special variation codes

VAA - begins an alpha code assigned to designate the variation from standard (example VAA = 1st variation, VAB = 2nd variation, etc.). These bearing codes do not in any way reference the modification from standard. Application Engineering must be contacted for information concerning a particular modification.



ROLLWAY® *Radial Bearings*



Features and Benefits

Unmounted Internal Clearances

Rollway's standard is C3, though other unmounted internal clearances are readily available.



Retainers

Standard retainer options include segmented steel or machined brass, which are detailed on the following pages.



Precision Ground Inner and Outer Races

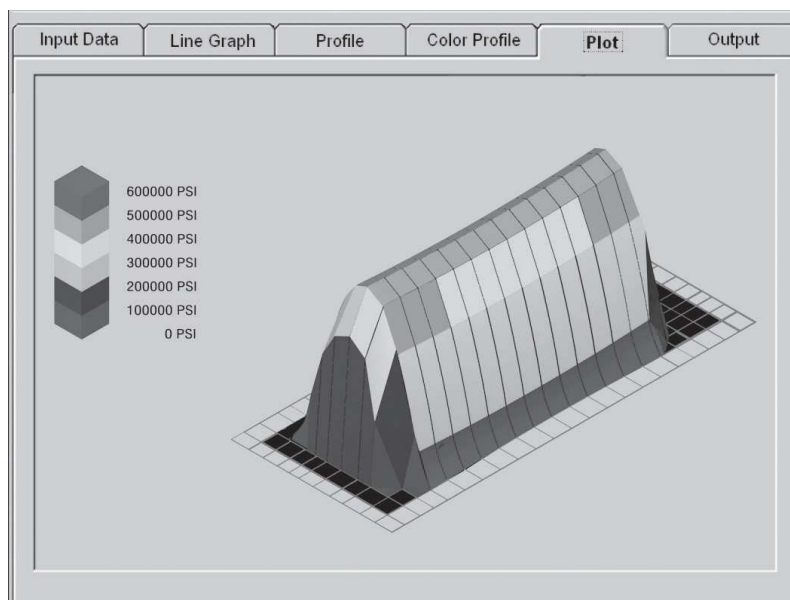
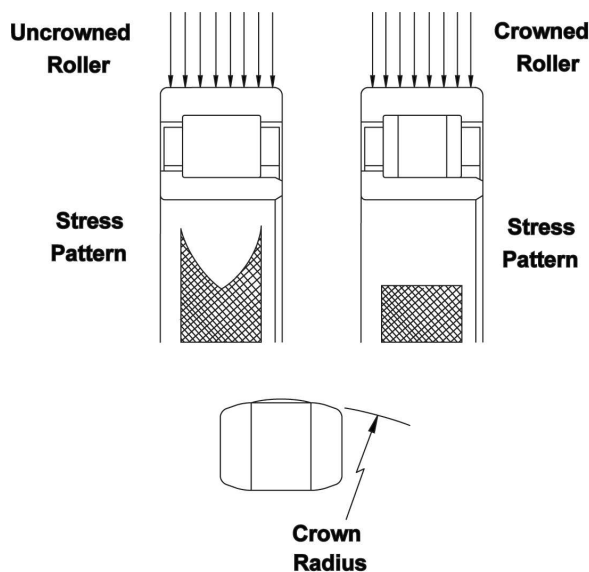
Races are manufactured from through hardened bearing grade steel. Surfaces are precision ground to RBEC 1 and stabilized to 335°F.



Features and Benefits

Matched Precision Crowned Rollers

All radial rollers are crowned. Extra capacity bearing designs have larger rollers, maximizing the load carrying potential of the bearing's cross sectional area. Crowned rollers yield a more evenly distributed load pattern on the races, resulting in longer life. All Rollway cylindrical and tapered bearings feature crowned rollers.



ROLLWAY® *Radial Bearings*



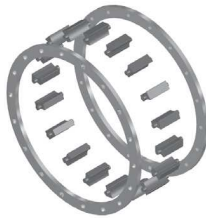
Options



Stamped Steel Retainer

A one-piece, steel stamping. Supplied on some bearings with snap ring retention. (TRU-ROL numbering suffix of "R") Recommended for low speed operations.

- Stamped Steel
- Rides below pitch circle
- Low Speed
- Used only with Outer Race or Retaining rings
- Rollers guided by raceway flanges
- Well suited for volume production
- Inexpensive in comparison to other retainers



Segmented Steel Retainer

A built-up type of retainer utilizing steel segments rigidly held between stamped, steel end plates. This is the standard retainer supplied with commercial bearings identified with the TRU-ROL numbering system. Recommended for moderate speed applications.

- Formed steel segments held between two steel end plates
- Good roller guidance with minimizing friction
- Flexible – accommodates different widths
- This retainer design is well adapted for volume production



Two-Piece Retainer

This type of retainer is fabricated from brass. This is the standard retainer supplied with Rollway bearings identified with the MAX numbering system, ISO numbering system, TRU-ROL numbering system when the "MR" suffix is used, and any bearing with bore size over 180mm. Recommended for moderate to high speed applications.

- Accurate roller guidance
- Machined Pockets to minimize skewing
- Typically made of brass, cast iron is available for applications where brass cannot be used
- Higher speed applications
- Recommended when torsional loading on retainer is severe.
- Available with most radial roller



Options continued



One-Piece Retainer

This land piloting retainer is fabricated from brass or steel with radial retention of the rollers provided by closing the roller “pocket” with small projections formed by mechanically upsetting the retainer material. This retainer design is typically made to order for high speed applications, though it is applicable for other applications. It should be noted that retainers may be designed for specific applications to enhance bearing performance. Please contact Application Engineering for more information.

- High speed applications
- Made of brass or silver plated steel
- Land riding, minimizing friction between the rollers and the retainer
- Special order only

Race and Roller Material

The races and rollers in standard Rollway bearings are made of high alloy, through-hardened and/or case carburized steels that are stabilized for operation up to 250°F for case carburized steel and 335°F for through-hardened steels. For operating temperatures in excess of 335°F, special materials and/or stabilization procedures are necessary.

Vacuum-degassed steels are used in standard bearings; however, consumable-electrode remelted steels (from either air CEVM or vacuum-melted electrodes VIMVAR) are available in all alloys and will be supplied upon request.

We also manufacture low quantities of bearing designs with M-50 tool steel for applications requiring high temperature hardness and average operating temperatures over 400°F but less than 800°F.

ROLLWAY® Radial Bearings

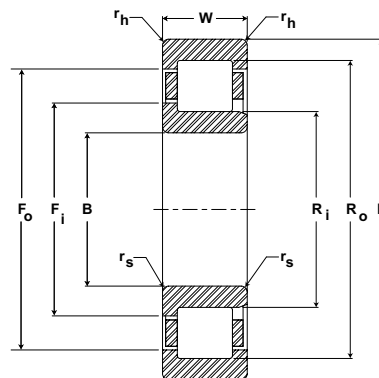


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
30 1.1811	62 2.4409	16 .6299	1.0 .039	1.0 .039	31,942 7,130	31,002 6,920	41.3 1.626	38.0 1.490	51.2 2.030	54.0 2.126	0.2 0.4
		23.8 .9375	1.0 .039	1.0 .039	47,533 10,610	51,654 11,530	41.3 1.626	38.0 1.498	51.2 2.016	54.0 2.126	0.4 0.9
	72 2.8346	19 .7480	1.5 .059	1.0 .039	44,486 9,930	42,605 9,510	44.6 1.756	40.7 1.602	56.9 2.239	60.4 2.378	0.5 1.1
		30.2 1.1875	1.5 .059	1.0 .039	70,918 15,830	77,683 17,340	44.6 1.756	40.7 1.602	56.9 2.239	60.4 2.378	0.6 1.3
		27 1.0625	1.0 .039	1.0 .039	62,541 13,960	69,754 15,570	48.0 1.890	44.0 1.732	59.4 2.340	62.4 2.457	0.3 0.7
35 1.3780	72 2.8346	17 .6693	1.0 .039	1.0 .039	38,304 8,550	37,094 8,280	48.0 1.890	44.0 1.732	59.4 2.340	62.4 2.457	0.3 0.7
		27 1.0625	1.0 .039	1.0 .039	62,541 13,960	69,754 15,570	48.0 1.890	44.0 1.732	59.4 2.340	62.4 2.457	0.5 1.1
		54 2.1250	1.0 .039	1.0 .039	107,206 23,930	139,462 31,130	48.0 1.890	44.0 1.732	59.4 2.340	62.4 2.457	1.0 2.2
	80 3.1496	21 .8268	1.5 .059	1.0 .039	67,155 14,990	66,394 14,820	51.2 2.016	46.2 1.819	65.4 2.575	70.2 2.764	0.5 1.1
		34.9 1.3750	1.5 .059	1.5 .059	58,150 12,980	59,584 13,300	51.1 2.012	46.8 1.844	64.2 2.526	67.9 2.673	0.5 1.1
40 1.5748	80 3.1496	18 .7087	1.5 .059	1.0 .039	46,234 10,320	46,906 10,470	53.4 2.102	49.9 1.966	66.1 2.602	69.6 2.740	0.5 1.1
		30 1.1875	1.5 .059	1.0 .039	79,296 17,700	93,856 20,950	53.4 2.102	49.9 1.966	66.1 2.602	69.6 2.740	0.7 1.5
		23 .9055	1.5 .059	1.5 .059	82,880 18,500	81,581 18,210	57.7 2.272	52.0 2.047	74.4 2.929	80.0 3.150	0.7 1.5
	90 3.5433	36.5 1.4375	1.5 .059	1.5 .059	110,522 24,670	124,992 27,900	57.4 2.260	52.6 2.059	73.1 2.878	77.9 3.067	1.3 2.9
		19 .7480	1.5 .059	1.0 .039	63,571 14,190	67,469 15,060	59.1 2.327	54.5 2.146	72.1 2.839	76.5 3.012	0.6 1.3
45 1.7717	85 3.3465	30.2 1.1875	1.5 .059	1.0 .039	82,029 18,310	101,248 22,600	59.4 2.339	55.5 2.186	71.5 2.815	74.9 2.949	0.8 1.8
		49.7 1.9625	2.0 .079	1.5 .059	136,998 30,580	163,878 36,580	64.8 2.551	59.4 2.337	81.3 3.201	86.1 3.390	1.7 3.7
		25 .9843	1.5 .059	1.5 .059	100,262 22,380	102,592 22,900	64.6 2.543	58.5 2.303	82.5 3.248	88.5 3.484	1.0 2.2
	100 3.9370	25 .9843	2.0 .079	1.5 .059	88,301 19,710	93,184 20,800	64.8 2.551	59.4 2.337	81.3 3.201	86.1 3.390	1.0 2.2
		19 .7480	1.5 .059	1.0 .039	63,571 14,190	67,469 15,060	59.1 2.327	54.5 2.146	72.1 2.839	76.5 3.012	0.6 1.3

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

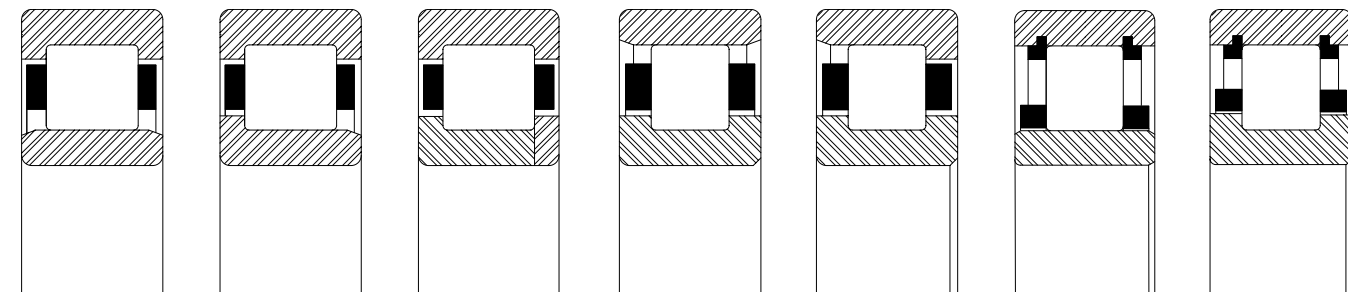
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
E 1206 U	L 1206 U	LP 1206 U	U 1206 E	U 1206 L	E 1206 B	U 1206 B
E 5206 U	L 5206 U	LP 5206 U	U 5206 E	U 5206 L	E 5206 B	U 5206 B
E 1306 U	L 1306 U	LP 1306 U	U 1306 E	U 1306 L	E 1306 B	U 1306 B
E 5306 U	L 5306 U	LP 5306 U	U 5306 E	U 5306 L	E 5306 B	U 5306 B
E 1207 U	L 1207 U	LP 1207 U	U 1207 E	U 1207 L	E 1207 B	U 1207 B
E 5207 U	L 5207 U	LP 5207 U	U 5207 E	U 5207 L	E 5207 B	U 5207 B
E 6207 U	L 6207 U	LP 6207 U	U 6207 E	U 6207 L	E 6207 B	U 6207 B
NU 307 U	NJ 307 E	NUP 307 E	N 307 E	-	-	-
E 1307 U	L 1307 U	LP 1307 U	U 1307 E	U 1307 L	E 1307 B	U 1307 B
E 5307 U	L 5307 U	LP 5307 U	U 5307 E	U 5307 L	E 5307 B	U 5307 B
E 1208 U	L1208 U	LP1208 U	U 1208 E	U 1208 L	E1208 B	U 1208 B
E 5208 U	L 5208 U	LP 5208 U	U 5208 E	U 5208 L	E 5208 B	U 5208 B
NU 308 U	NJ 308 E	NUP 308 E	N 308 E	-	-	-
E 1308 U	L 1308 U	LP 1308 U	U 1308 E	U 1308 L	E 1308 B	U 1308 B
E 5308 U	L 5308 U	LP 5308 U	U 5308 E	U 5308 L	E 5308 B	U 5308 B
NU 209 E	NJ 209 E	NUP 209 E	N 209 E	-	-	-
E 1209 U	L 1209 U	LP 1209 U	U 1209 E	U 1209 L	E 1209 B	U 1209 B
E 5209 U	L 2509 U	LP 2509 U	U 2509 E	U 2509 L	E 2509 B	U 2509 B
E 5309 U	L 5309 U	LP 5309 U	U 5309 E	U 5309 L	E 5309 B	U 5309 B
NU 309 E	NJ 309 E	NUP 309 E	N 309 E	-	-	-
E 1309 U	L 1309 U	LP 1309 U	U 1309 E	U 1309 L	E 1309 B	U 1309 B

ROLLWAY® Radial Bearings

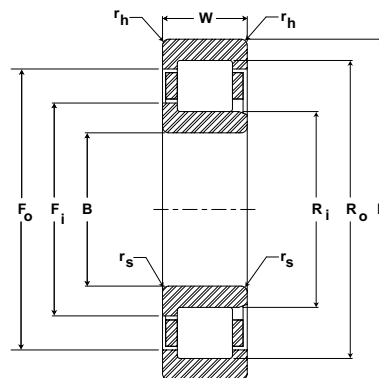


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	
50 1.9685	90 3.5433	20 .7874	1.0 .039	1.0 .039	66,528 14,850	73,024 16,300	64.1 2.524	59.5 2.343	77.1 3.035	81.5 3.209	0.6 1.3
			1.5 .059	1.0 .039	52,416 11,700	58,957 13,160	64.4 2.535	60.5 2.382	76.6 3.015	79.5 3.130	0.6 1.3
		30.2 1.1875	1.5 .059	1.0 .039	83,597 18,660	107,430 23,980	64.4 2.535	60.5 2.382	76.7 3.018	79.5 3.130	0.9 2.0
			60.3 2.3750	1.5 .059	1.0 .039	143,360 32,000	214,861 47,960	64.4 2.535	60.5 2.382	76.7 3.018	79.5 3.130
	1.5 .059	1.5 .059	102,816 22,950	109,357 24,410	71.0 2.795	65.2 2.565	89.2 3.512	94.5 3.720	1.3 2.9		
	40 1.5748	1.5 .059	1.5 .059	165,760 37,000	192,326 42,930	71.4 2.811	65.2 2.565	89.2 3.512	97.0 3.819	1.9 4.2	
		44.5 1.7475	1.5 .059	1.5 .059	161,683 36,090	195,731 43,690	71.0 2.795	65.0 2.559	89.2 3.512	94.5 3.720	2.3 5.1
	100 3.9370	21 .8268	2.0 .079	1.5 .059	86,957 19,410	100,262 22,380	70.9 2.791	66.0 2.598	85.2 3.354	90.0 3.543	0.7 1.5
			2.0 .079	1.5 .059	65,318 14,580	75,443 16,840	71.1 2.799	66.9 2.634	84.2 3.316	88.0 3.465	1.0 2.2
		33.3 1.3125	2.0 .079	2.0 .079	105,862 23,630	140,358 31,330	71.1 2.799	66.9 2.634	84.2 3.316	88.0 3.465	0.5 1.1
29 1.1417			2.0 .079	2.0 .079	139,552 31,150	146,496 32,700	77.6 3.055	70.5 2.776	99.3 3.909	106.5 4.193	1.6 3.5
		43 1.6929	2.0 .079	2.0 .079	116,301 25,960	123,738 27,620	77.9 3.067	71.4 2.812	97.8 3.851	103.6 4.079	1.6 3.5
49.2 1.9375			2.0 .079	2.0 .079	203,571 45,440	238,067 53,140	77.6 3.055	70.5 3.031	99.3 4.228	106.5 4.193	2.4 5.3
		49.2 1.9375	2.0 .079	2.0 .079	199,405 44,510	247,027 55,140	77.9 3.067	71.4 2.812	97.8 3.850	103.6 4.079	2.8 6.2
60 2.3622			110 4.3307	22 .8661	1.5 .059	97,126 21,680	107,251 23,940	77.7 3.059	72.0 2.835	94.4 3.717	100.0 3.937
	2.0 .079	1.5 .059			80,819 18,040	89,958 20,080	76.9 3.028	72.4 2.850	93.2 3.670	97.7 3.846	1.0 2.2
	36.5 1.4375	2.0 .079		1.5 .059	136,192 30,400	176,019 39,290	76.9 3.028	72.4 2.850	93.2 3.670	97.7 3.846	1.6 3.5
		73 2.8750		2.0 .079	1.5 .059	233,498 52,120	351,994 78,570	76.9 3.028	72.4 2.850	93.2 3.670	97.7 3.846
	2.5 .098	2.0 .079	135,475 30,240	145,914 32,570	84.6 3.331	77.5 3.053	106.3 4.187	112.4 4.425	2.0 4.4		
	46 1.8110	2.0 .079	2.0 .079	227,629 50,810	270,682 60,420	84.5 3.327	77.0 3.031	107.4 4.228	115.0 4.528	2.5 5.5	
		54 2.1250	2.5 .098	2.0 .079	239,411 53,440	303,341 67,710	84.6 3.331	77.5 3.053	106.3 4.190	112.4 4.425	3.9 8.6

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

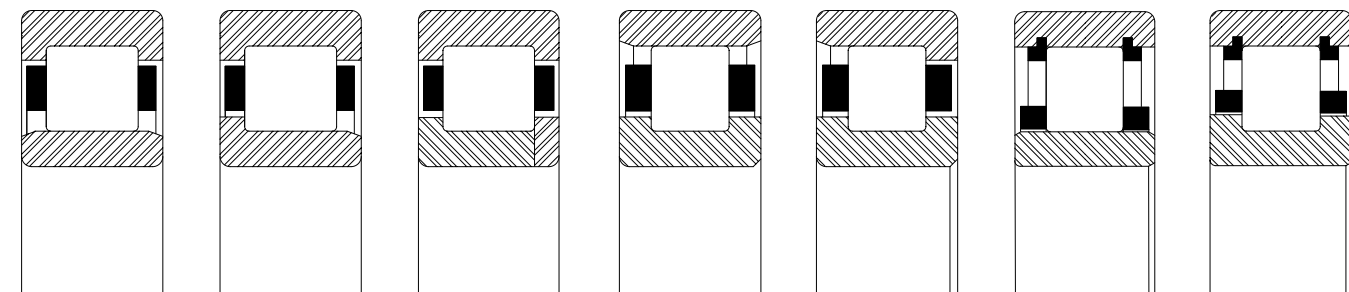
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
NU 210 E	NJ 201 E	NUP 201 E	N 201 E	-	-	-
E 1210 U	L 1210 U	LP 1210 U	U 1210 E	U 1210 L	E 1210 B	U 1210 B
E 5210 U	L 5210 U	LP 5210 U	U 5210 E	U 5210 L	E 5210 B	U 5210 B
E 6210 U	L 6210 U	LP 6210 U	U 6210 E	U 6210 L	E 6210 B	U 6210 B
NU 310 E	NJ 310 E	NUP 310 E	N 310 E	-	-	-
E 1310 U	L 1310 U	LP 1310 U	U 1310 E	U 1310 L	E 1310 B	U 1310 B
NU 2310 E	NJ 2310 E	NUP 2310 E	N 2310 E	-	-	-
E 5310 U	L 5310 U	LP 5310 U	U 5310 E	U 5310 L	E 5310 B	U 5310 B
NU 211 E	NJ 211 E	NUP 211 E	N 211 E	-	-	-
E 1211 U	L 1211 U	LP 1211 U	U 1211 E	U 1211 L	E 1211 B	U 1211 B
E 5211 U	L 5211 U	LP 5211 U	U 5211 E	U 5211 L	E 5211 B	U 5211 B
NU 311 E	NJ 311 E	NUP 311 E	N 311 E	-	-	-
E 1311 U	L 1311 U	LP 1311 U	U 1311 E	U 1311 L	E 1311 B	U 1311 B
NU 2311 E	NJ 2311 E	NUP 2311 E	N 2311 E	-	-	-
E 5311 U	L 5311 U	LP 5311 U	U 5311 E	U 5311 L	E 5311 B	U 5311 B
NU 212 E	NJ 212 E	NUP 212 E	N 212 E	-	-	-
E 1212 U	L 1212 U	LP 1212 U	U 1212 E	U 1212 L	E 1212 B	U 1212 B
E 5212 U	L 5212 U	LP 5212 U	U 5212 E	U 5212 L	E 5212 B	U 5212 B
E 6212 U	L 6212 U	LP 6212 U	U 6212 E	U 6212 L	E 6212 B	U 6212 B
NU 312 E	NJ 312 E	NUP 312 E	N 312 E	-	-	-
E 1312 U	L 1312 U	LP 1312 U	U 1312 E	U 1312 L	E 1312 B	U 1312 B
NU 2312 E	NJ 2312 E	NUP 2312 E	N 2312 E	-	-	-
E 5312 U	L 5312 U	LP 5312 U	U 5312 E	U 5312 L	E 5312 B	U 5312 B

ROLLWAY® Radial Bearings

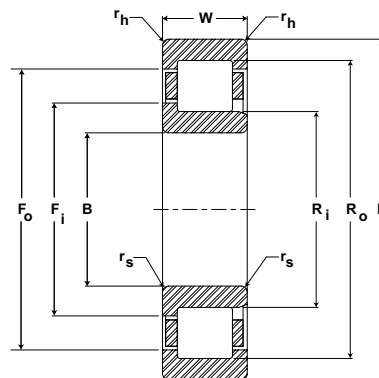


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
65 2.5591	120 4.7244	23 .9055	1.5	1.5	110,790	124,186	84.6	78.5	102.5	108.5	1.2
			.059	.059	24,730	27,720	3.331	3.090	4.035	4.272	2.6
		38.1 1.5000	2.5	1.5	93,453	111,642	85.3	80.4	101.2	105.7	1.2
			.098	.098	20,860	24,920	3.358	3.166	3.986	4.161	2.6
	140 5.5118	33 1.2992	2.5	1.5	93,453	111,642	85.3	80.4	101.2	105.7	2.4
			.098	.098	20,860	24,920	3.358	3.166	3.986	4.161	5.3
		48 1.8898	2.0	2.0	184,710	198,195	90.7	82.5	116.1	124.5	2.5
			.079	.079	41,230	44,240	3.571	3.248	4.571	4.902	5.5
		58.7 2.3125	2.5	2.0	160,026	175,078	90.7	83.7	114.7	120.2	2.5
			.098	.079	35,720	39,080	3.571	3.294	4.515	4.732	5.5
			2.0	2.0	251,910	295,366	90.7	82.5	116.1	124.5	3.6
			.079	.079	56,230	65,930	3.571	3.248	4.571	4.902	7.9
70 2.7559	125 4.9213	24 .9449	2.0	2.0	293,574	367,136	90.7	83.7	114.7	120.2	5.2
			.098	.079	65,530	81,950	3.571	3.294	4.515	4.732	11.4
		31 1.2205	2.0	2.0	111,194	126,067	89.4	83.5	107.2	113.5	1.3
			.079	.079	24,820	28,140	3.520	3.287	4.291	4.469	2.9
		39.7 1.5625	2.5	1.5	105,011	127,142	89.7	84.8	107.2	111.5	1.3
			.098	.059	23,440	28,380	3.531	3.339	4.213	4.390	2.9
		79.4 3.1250	2.5	1.5	295,232	480,211	89.7	84.8	106.7	111.5	4.4
			.098	.059	65,900	107,190	3.531	3.339	4.201	4.390	9.7
	150 5.9055	35 1.3780	2.0	2.0	208,992	229,331	97.5	89.0	124.2	133.0	3.0
			.079	.079	46,650	51,190	3.839	3.504	4.890	5.236	6.6
		51 2.0079	3.2	2.0	193,760	219,699	97.3	89.2	122.2	129.3	3.0
			.126	.079	43,250	49,040	3.831	3.511	4.811	5.091	6.6
		63.5 2.5000	2.0	2.0	278,522	331,699	97.5	89.0	124.2	133.0	4.9
			.079	.079	62,170	74,040	3.839	3.504	4.890	5.236	10.8
			3.2	2.0	316,064	412,160	97.3	89.2	122.2	129.3	5.9
			.126	.079	70,550	92,000	3.831	3.511	4.811	5.091	13.0
75 2.9528	115 4.5276	20 0.7874	2.0	1.0	61,958	79,117	89.2	85.2	101.0	104.9	0.8
			.079	.039	13,830	17,660	3.512	3.355	3.977	4.130	1.8
		25 .9843	1.5	1.5	133,683	162,938	94.5	88.5	112.3	118.5	1.4
			.059	.059	29,840	36,370	3.720	3.484	4.420	4.665	3.1
	130 5.1181	25 1.2250	2.5	1.5	104,608	127,949	94.4	89.0	111.0	115.7	1.4
			.098	.059	23,350	28,560	3.717	3.504	4.369	4.555	3.1
		31 1.2250	1.5	1.5	165,536	214,458	94.5	88.5	112.3	118.5	1.8
			.059	.059	36,950	47,870	3.720	3.484	4.421	4.665	4.0
		41.3 1.6250	2.5	1.5	179,334	255,898	94.4	88.9	111.0	115.7	2.7
			.098	.059	40,030	57,120	3.717	3.500	4.270	4.555	5.9
	160 6.2992	37 1.4567	2.0	2.0	245,146	271,354	104.2	95.0	133.4	143.0	3.6
			.079	.079	54,720	60,570	4.102	3.740	5.252	5.630	7.9
		55 2.1654	3.2	2.0	192,685	211,635	104.5	95.9	131.4	139.1	3.6
			.126	.079	43,010	47,240	4.114	3.776	5.172	5.476	7.9
		68.3 2.6875	2.0	2.0	245,146	271,354	104.2	95.0	133.4	143.0	5.5
			.079	.079	54,720	60,570	4.102	3.740	5.252	5.630	12.1
			3.2	2.0	369,914	489,485	104.5	95.9	131.4	139.1	7.3
			.126	.079	82,570	109,260	4.114	3.776	5.180	5.476	16.1

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

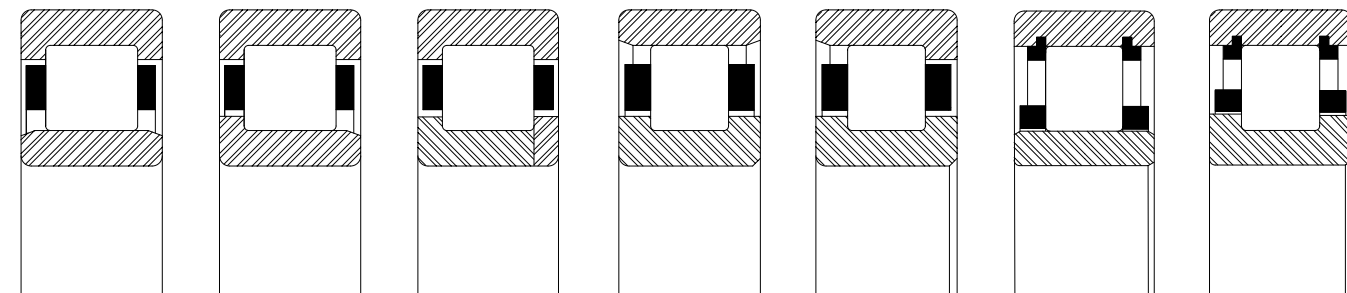
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
NU 213 E	NJ 213 E	NUP 213 E	N 213 E	-	-	-
E 1213 U	L 1213 U	LP 1213 U	U 1213 E	U 1213 L	E 1213 B	U 1213 B
E 5213 U	L 5213 U	LP 5213 U	U 5213 E	U 5213 L	E 5213 B	U 5213 B
NU 313 E	NJ 313 E	NUP 313 E	N 313 E	-	-	-
E 1313 U	L 1313 U	LP 1313 U	U 1313 E	U 1313 L	E 1313 B	U 1313 B
NU 2313 E	NJ 2313 E	NUP 2313 E	N 2313 E	-	-	-
E 5313 U	L 5313 U	LP 5313 U	U 5313 E	U 5313 L	E 5313 B	U 5313 B
NU 214 E	NJ 214 E	NUP 214 E	N 214 E	-	-	-
E 1214 U	L 1214 U	LP 1214 U	U 1214 E	U 1214 L	E 1214 B	U 1214 B
NU 2214 E	NJ 2214 E	NUP 2214 E	N 2214 E	-	-	-
E 5214 U	L 5214 U	LP 5214 U	U 5214 E	U 5214 L	E 5214 B	U 5214 B
E 6214 U	L 6214 U	LP 6214 U	U 6214 E	U 6214 L	E 6214 B	U 6214 B
NU 314 E	NJ 314 E	NUP 314 E	N 314 E	-	-	-
E 1314 U	L 1314 U	LP 1314 U	U 1314 E	U 1314 L	E 1314 B	U 1314 B
NU 2314 E	NJ 2314 E	NUP 2314 E	N 2314 E	-	-	-
E 5314 U	L 5314 U	LP 5314 U	U 5314 E	U 5314 L	E 5314 B	U 5314 B
E 1015 U	L 1015 U	LP 1015 U	U 1015 E	U 1015 L	E 1015 B	U 1015 B
NU 215 E	NJ 215 E	NUP 215 E	N 215 E	-	-	-
E 1215 U	L 1215 U	LP 1215 U	U 1215 E	U 1215 L	E 1215 B	U 1215 B
NU 2215 E	NJ 2215 E	NUP 2215 E	N 2215 E	-	-	-
E 5215 U	L 5215 U	LP 5215 U	U 5215 E	U 5215 L	E 5215 B	U 5215 B
NU 315 E	NJ 315 E	NUP 315 E	N 315 E	-	-	-
E 1315 U	L 1315 U	LP 1315 U	U 1315 E	U 1315 L	E 1315 B	U 1315 B
NU 2315 E	NJ 2315 E	NUP 2315 E	N 2315 E	-	-	-
E 5315 U	L 5315 U	LP 5315 U	U 5315 E	U 5315 L	E 5315 B	U 5315 B

ROLLWAY® Radial Bearings

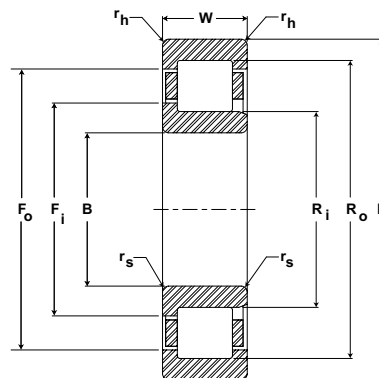


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
80 3.1496	140 5.5118	26 1.0236	2.0	2.0	143,136	174,048	101.7	95.3	121.4	127.3	1.7
			.079	.079	31,950	38,850	4.004	3.752	4.780	5.012	3.7
		33 1.2992	2.5	2.0	114,150	137,402	101.7	95.3	119.4	124.6	1.7
			.098	.079	25,480	30,670	4.004	3.752	4.700	4.906	3.7
		44.5 1.7500	2.0	2.0	190,355	251,104	101.7	95.3	121.4	127.3	2.3
			.079	.079	42,490	56,050	4.004	3.752	4.842	5.012	5.1
	170 6.6929	58.9 3.5000	2.5	2.0	202,899	287,750	101.1	95.3	119.4	124.6	3.2
			.098	.079	45,290	64,230	3.980	3.752	4.700	4.906	7.0
		88.9 3.5000	2.5	2.0	202,899	287,750	101.1	95.3	119.4	124.6	0.6
			.098	.079	45,290	64,230	3.980	3.752	4.701	4.906	1.3
		39 1.5354	2.0	2.0	264,410	295,456	110.6	101.0	141.0	151.0	4.3
			.079	.079	59,020	65,950	4.354	3.976	5.551	5.945	9.5
			3.2	2.0	231,123	262,214	110.7	101.6	139.2	147.3	4.4
			.126	.079	51,590	58,530	4.358	4.001	5.480	5.799	9.7
85 3.3465	130 5.1181	22 .8661	2.0	1.5	90,138	122,259	100.8	96.3	113.9	118.7	1.1
			.079	.059	20,120	27,290	3.969	3.792	4.501	4.673	2.4
		28 1.1024	1.5	2.0	169,926	203,974	107.6	100.5	129.3	136.5	2.1
			.059	.079	37,930	45,530	4.236	3.957	5.091	5.374	4.6
	150 5.9055	36 1.4173	3.2	2.0	139,059	169,971	108.5	102.0	128.4	134.1	2.1
			.126	.079	31,040	37,940	4.272	4.016	5.056	5.280	4.6
		49.2 1.9375	2.0	2.0	220,506	285,107	107.6	100.5	129.3	136.5	2.9
			.079	.079	49,220	63,640	4.236	3.957	5.091	5.374	6.4
	180 7.0866	60 2.3622	3.2	2.0	250,701	362,611	108.5	102.0	128.4	134.1	4.0
			.126	.079	55,960	80,940	4.272	4.016	5.056	5.280	8.8
		73 2.8750	2.5	2.5	284,346	321,126	118.0	108.0	149.6	160.0	5.1
			.098	.098	63,470	71,680	4.646	4.252	5.890	6.299	11.2
		100.450 3.9508	4.0	2.5	234,573	260,019	118.2	108.5	148.6	157.3	5.0
			.157	.098	52,360	58,040	4.654	4.272	5.850	6.193	11.0
90 3.5433	160 6.2992	30 1.1811	2.5	2.5	380,531	467,085	118.0	108.0	149.6	160.0	6.8
			.098	.098	84,940	104,260	4.646	4.252	5.890	6.299	15.0
		40 1.5748	4.0	2.5	450,016	600,813	118.2	108.5	148.6	157.3	9.5
			.157	.098	100,450	134,110	4.654	4.272	5.850	6.193	20.9
		52.4 2.0625	2.0	2.0	187,936	227,808	114.5	107.0	137.4	145.0	2.6
			.079	.079	41,950	50,850	4.508	4.213	5.409	5.709	5.7
	190 7.4803	64 2.5197	3.2	2.0	163,072	200,570	114.2	107.2	135.9	142.1	2.7
			.126	.079	36,400	44,770	4.496	4.220	5.350	5.594	5.9
		73 2.8750	2.0	2.0	248,237	325,830	114.2	107.0	137.4	145.0	3.4
			.079	.079	55,410	72,730	4.496	4.213	5.409	5.709	7.5
		84 3.3071	2.0	2.0	290,304	421,075	114.2	107.2	135.9	142.1	5.0
			.079	.079	64,800	93,990	4.496	4.220	5.350	5.594	11.0
		94 3.6992	2.5	2.5	322,112	364,941	124.2	113.5	158.3	169.5	5.9
			.098	.098	71,900	81,460	4.890	4.469	6.232	6.673	13.0
90 3.5433	160 6.2992	30 1.1811	4.0	2.5	295,366	344,064	123.4	114.0	156.2	165.3	5.9
			.157	.098	65,930	76,800	4.858	4.488	6.150	6.508	13.0
		64 2.5197	2.5	2.5	441,594	547,501	124.2	113.5	158.3	169.5	8.7
			.098	.098	98,570	122,210	4.890	4.469	6.232	6.673	19.1
		73 2.8750	2.5	2.5	490,202	659,859	123.4	114.0	156.2	165.3	10.0
			.098	.098	109,420	147,290	4.858	4.488	6.232	6.508	22.0

Radial roller bearings are manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

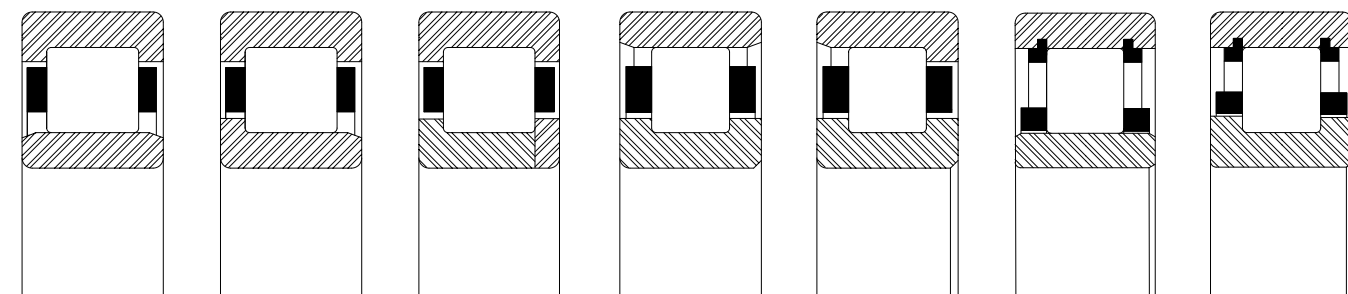
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
NU 216 E	NJ 216 E	NUP 216 E	N 216 E	-	-	-
E 1216 U	L 1216 U	LP 1216 U	U 1216 E	U 1216 L	E 1216 B	U 1216 B
NU 2216 E	NJ 2216 E	NUP 2216 E	N 2216 E	-	-	-
E 5216 U	L 5216 U	LP 5216 U	U 5216 E	U 5216 L	E 5216 B	U 5216 B
E 6216 U	L 6216 U	LP 6216 U	U 6216 E	U 6216 L	E 6216 B	U 6216 B
NU 316 E	NJ 316 E	NUP 316 E	N 316 E	-	-	-
E 1316 U	L 1316 U	LP 1316 U	U 1316 E	U 1316 L	E 1316 B	U 1316 B
NU 2316 E	NJ 2316 E	NUP 2316 E	N 2316 E	-	-	-
E 5316 U	L 5316 U	LP 5316 U	U 5316 E	U 5316 L	E 5316 B	U 5316 B
E 1017 U	L 1017 U	LP 1017 U	U 1017 E	U 1017 L	E 1017 B	U 1017 B
NU 217 E	NJ 217 E	NUP 217 E	N 217 E	-	-	-
E 1217 U	L 1217 U	LP 1217 U	U 1217 E	U 1217 L	E 1217 B	U 1217 B
NU 2217 E	NJ 2217 E	NUP 2217 E	N 2217 E	-	-	-
E 5217 U	L 5217 U	LP 5217 U	U 5217 E	U 5217 L	E 5217 B	U 5217 B
NU 317 E	NJ 317 E	NUP 317 E	N 317 E	-	-	-
E 1317 U	L 1317 U	LP 1317 U	U 1317 E	U 1317 L	E 1317 B	U 1317 B
NU 2317 E	NJ 2317 E	NUP 2317 E	N 2317 E	-	-	-
E 5317 U	L 5317 U	LP 5317 U	U 5317 E	U 5317 L	E 5317 B	U 5317 B
NU 218 E	NJ 218 E	NUP 218 E	N 218 E	-	-	-
E 1218 U	L 1218 U	LP 1218 U	U 1218 E	U 1218 L	E 1218 B	U 1218 B
NU 2218 E	NJ 2218 E	NUP 2218 E	N 2218 E	-	-	-
E 5218 U	L 5218 U	LP 5218 U	U 5218 E	U 5218 L	E 5218 B	U 5218 B
NU 318 E	NJ 318 E	NUP 318 E	N 318 E	-	-	-
E 1318 U	L 1318 U	LP 1318 U	U 1318 E	U 1318 L	E 1318 B	U 1318 B
NU 2318 E	NJ 2318 E	NUP 2318 E	N 2318 E	-	-	-
E 5318 U	L 5318 U	LP 5318 U	U 5318 E	U 5318 L	E 5318 B	U 5318 B

ROLLWAY® Radial Bearings

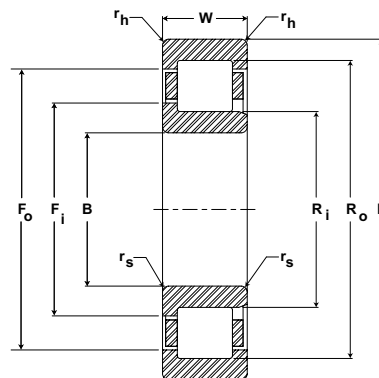


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
95 3.7402	170 6.6929	32 1.2598	2.0 .079	2.0 .079	215,309 48,060	257,914 57,570	120.7 4.752	112.5 4.429	146.1 5.752	154.5 6.083	3.1 6.8
			3.2 .126	2.0 .079	191,744 42,800	238,918 53,330	121.0 4.764	113.5 4.469	144.5 5.689	151.2 5.953	3.2 7.0
		43 1.6929	2.0 .079	2.0 .079	278,522 62,170	359,072 80,150	120.7 4.752	112.5 4.429	146.1 5.752	154.5 6.083	4.2 9.2
			3.2 .126	2.0 .079	334,880 74,750	489,350 109,230	121.0 4.764	113.5 4.469	144.5 5.689	151.2 5.953	6.4 14.1
		111.1 4.3750	3.2 .126	2.0 .079	574,157 128,160	978,701 218,460	121.0 4.764	113.5 4.469	144.5 5.689	151.2 5.953	10.9 24.0
			3.0 .118	2.5 .098	340,883 76,090	398,182 88,880	132.2 5.205	121.5 4.783	166.3 6.547	177.5 6.988	6.9 15.2
	200 7.8740	45 1.7717	4.0 .157	2.5 .098	279,194 62,320	323,456 72,200	132.5 5.217	122.1 4.807	164.3 6.468	173.4 6.827	6.8 15.0
			3.0 .118	2.5 .098	467,264 104,300	597,363 133,340	132.2 5.205	121.5 4.783	166.3 6.547	177.5 6.988	11.2 24.6
		77.8 3.0625	4.0 .157	2.5 .098	463,322 103,420	620,301 138,460	132.5 5.217	122.1 4.807	164.3 6.469	173.4 6.827	13.6 29.9
			2.0 .079	2.0 .079	243,309 54,310	297,114 66,320	127.5 5.020	119.0 4.685	154.2 6.070	163.0 6.417	4.9 10.8
		34 1.3386	4.0 .157	2.0 .079	209,754 46,820	261,722 58,420	129.0 5.079	121.0 4.764	154.2 6.070	161.1 6.343	3.8 8.4
			2.0 .079	2.0 .079	324,218 72,370	429,766 95,930	127.5 5.020	119.0 4.685	154.2 6.070	163.0 6.417	5.5 12.1
100 3.9370	180 7.0866	60.3 2.3750	4.0 .157	2.0 .079	377,306 84,220	556,774 124,280	129.0 5.079	121.0 4.764	154.2 6.070	161.1 6.343	7.3 16.1
			4.0 .157	2.0 .079	646,912 144,400	1,113,594 248,570	129.0 5.079	121.0 4.764	154.2 6.070	161.1 6.343	10.9 24.0
		120.7 4.7500	4.0 .157	2.0 .079	646,912 144,400	1,113,594 248,570	129.0 5.079	121.0 4.764	154.2 6.070	161.1 6.343	10.9 24.0
			2.5 .098	2.5 .098	392,090 87,520	445,312 99,400	139.6 5.496	127.5 5.020	178.7 7.035	191.5 7.539	8.4 18.5
		47 1.8504	4.7 .185	2.5 .098	305,626 68,220	354,637 79,160	141.1 5.555	130.2 5.126	175.1 6.894	184.8 7.276	8.6 18.9
			2.5 .098	2.5 .098	583,430 130,230	742,246 165,680	139.6 5.496	127.5 5.020	178.7 7.035	191.5 7.539	13.1 28.8
	215 8.4646	82.6 3.2500	4.7 .185	2.5 .098	551,533 123,110	757,568 169,100	141.1 5.555	130.2 5.126	175.1 6.892	184.8 7.276	15.0 33.0
			2.5 .098	2.0 .079	132,742 29,630	189,504 42,300	124.5 4.902	119.2 4.693	140.6 5.535	145.8 5.470	1.9 4.2
		36 1.4173	4.0 .157	2.0 .079	236,275 52,740	300,474 67,070	134.9 5.311	126.5 4.980	161.0 6.339	168.5 6.634	4.5 9.9
			4.0 .157	2.0 .079	442,221 98,710	672,672 150,150	134.9 5.311	126.5 4.980	161.0 6.339	168.5 6.634	9.1 20.0
		65.1 2.5625	4.7 .185	3.0 .118	439,757 98,160	502,790 112,230	146.6 5.772	132.9 5.232	187.4 7.378	200.9 7.909	9.5 20.9
			4.7 .185	2.5 .098	362,253 80,860	433,754 96,820	147.2 5.795	136.2 5.362	183.2 7.213	193.4 7.614	9.5 20.9
105 4.1339	160 6.2992	26 1.0236	2.5 .098	2.0 .079	132,742 29,630	189,504 42,300	124.5 4.902	119.2 4.693	140.6 5.535	145.8 5.470	1.9 4.2
			4.0 .157	2.0 .079	236,275 52,740	300,474 67,070	134.9 5.311	126.5 4.980	161.0 6.339	168.5 6.634	4.5 9.9
	190 7.4803	36 1.4173	4.0 .157	2.0 .079	442,221 98,710	672,672 150,150	134.9 5.311	126.5 4.980	161.0 6.339	168.5 6.634	9.1 20.0
			4.7 .185	3.0 .118	439,757 98,160	502,790 112,230	146.6 5.772	132.9 5.232	187.4 7.378	200.9 7.909	9.5 20.9
	225 8.8583	49 1.9291	4.7 .185	2.5 .098	362,253 80,860	433,754 96,820	147.2 5.795	136.2 5.362	183.2 7.213	193.4 7.614	9.5 20.9
			4.7 .185	2.5 .098	586,880 131,000	806,579 180,040	147.2 5.795	136.2 5.362	183.2 7.213	193.4 7.614	16.8 37.0

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

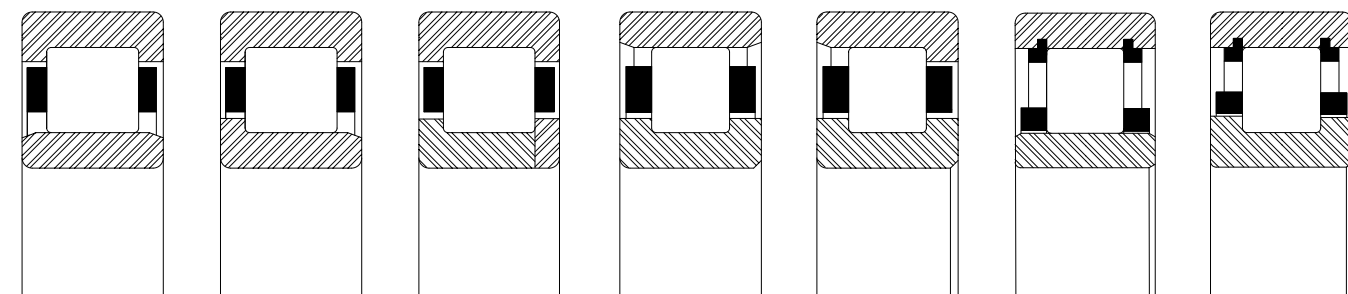
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

	Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
	NU 219 E	NJ 219 E	NUP 219 E	N 219 E	-	-	-
	E 1219 U	L 1219 U	LP 1219 U	U 1219 E	U 1219 L	E 1219 B	U 1219 B
	NU 2219 E	NJ 2219 E	NUP 2219 E	N 2219 E	-	-	-
	E 5219 U	L 5219 U	LP 5219 U	U 5219 E	U 5219 L	E 5219 B	U 5219 B
	E 6219 U	L 6219 U	LP 6219 U	U 6219 E	U 6219 L	E 6219 B	U 6219 B
	NU 319 E	NJ 319 E	NUP 319 E	N 319 E	-	-	-
	E 1319 U	L 1319 U	LP 1319 U	U 1319 E	U 1319 L	E 1319 B	U 1319 B
	NU 2319 E	NJ 2319 E	NUP 2319 E	N 2319 E	-	-	-
	E 5319 U	L 5319 U	LP 5319 U	U 5319 E	U 5319 L	E 5319 B	U 5319 B
	NU 220 E	NJ 220 E	NUP 220 E	N 220 E	-	-	-
	E 1220 U	L 1220 U	LP 1220 U	U 1220 E	U 1220 L	E 1220 B	U 1220 B
	NU 2220 E	NJ 2220 E	NUP 2220 E	N 2220 E	-	-	-
	E 5220 U	L 5220 U	LP 5220 U	U 5220 E	U 5220 L	E 5220 B	U 5220 B
	E 6220 U	L 6220 U	LP 6220 U	U 6220 E	U 6220 L	E 6220 B	U 6220 B
	NU 320 E	NJ 320 E	NUP 320 E	N 320 E	-	-	-
	E 1320 U	L 1320 U	LP 1320 U	U 1320 E	U 1320 L	E 1320 B	U 1320 B
	NU 2320 E	NJ 2320 E	NUP 2320 E	N 2320 E	-	-	-
	E 5320 U	L 5320 U	LP 5320 U	U 5320 E	U 5320 L	E 5320 B	U 5320 B
	E 1021 U	L 1021 U	LP 1021 U	U 1021 E	U 1021 L	E 1021 B	U 1021 B
	E 1221 U	L 1221 U	LP 1221 U	U 1221 E	U 1221 L	E 1221 B	U 1221 B
	E 5221 U	L 5221 U	LP 5221 U	U 5221 E	U 5221 L	E 5221 B	U 5221 B
	NU 321 E	NJ 321 E	NUP 321 E	N 321 E	-	-	-
	E 1321 U	L 1321 U	LP 1321 U	U 1321 E	U 1321 L	E 1321 B	E 1321 B
	E 5321 U	L 5321 U	LP 5321 U	U 5321 E	U 5321 L	E 5321 B	E 5321 B

ROLLWAY® Radial Bearings

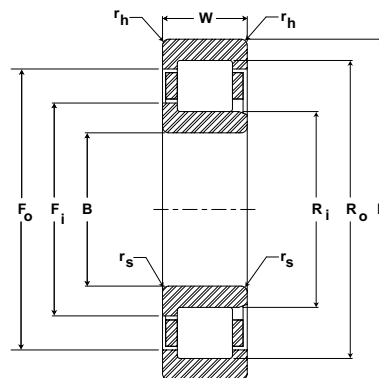


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
110 4.3307	170 6.6929	28 1.1024	2.5 .098	2.0 .079	160,115 35,740	230,586 51,470	130.8 5.150	125.3 4.933	149.0 5.866	154.7 6.091	2.3 5.1
	200 7.8740	38 1.4961	2.0 .079	2.0 .079	298,547 66,640	376,320 84,000	141.7 5.579	132.5 5.217	170.9 6.728	180.5 7.106	5.1 11.2
			4.0 .157	2.0 .079	242,816 54,200	308,851 68,940	141.6 5.575	132.9 5.232	168.4 6.630	176.1 6.933	5.5 12.1
			2.0 .079	2.0 .079	389,984 87,050	530,566 118,430	141.7 5.579	132.5 5.217	170.9 6.728	180.5 7.106	7.0 15.4
			4.0 .157	2.0 .079	440,966 98,430	665,011 148,440	141.6 5.575	132.9 5.232	168.4 6.636	176.1 6.933	10.5 23.1
	240 9.4488	50 1.9685	2.5 .098	2.5 .098	440,563 98,340	510,138 113,870	155.8 6.134	143.0 5.630	197.4 7.772	211.0 8.307	11.2 24.6
			4.7 .185	2.5 .098	410,502 91,630	499,565 111,510	157.5 6.201	145.3 5.720	195.4 7.693	206.3 8.122	11.4 25.1
			2.5 .098	2.5 .098	652,333 145,610	844,973 188,610	155.8 6.134	143.0 5.630	197.4 7.772	211.0 8.307	17.9 39.4
			4.7 .185	2.5 .098	765,274 170,820	1,112,698 248,370	157.5 6.201	145.3 5.720	195.4 7.692	206.3 8.122	23.2 51.0
			4.7 .185	2.5 .098	435,635 97,240	515,782 115,130	162.3 6.390	149.6 5.890	202.7 7.980	215.5 8.484	9.3 20.5
	250 9.8425	53 2.0866	4.7 .185	2.5 .098	435,635 97,240	515,782 115,130	162.3 6.390	149.6 5.890	202.7 7.980	215.5 8.484	12.7 27.9
			3.2 .126	2.0 .079	153,798 34,330	223,059 49,790	141.2 5.559	135.2 5.323	158.9 6.256	164.5 6.476	2.5 5.5
120 4.7244	180 7.0866	28 1.1024	3.2 .126	2.0 .079	241,875 53,990	399,347 89,140	141.2 5.559	135.3 5.328	158.9 6.256	164.5 6.476	4.2 9.2
			4.7 .185	2.0 .079	153,798 34,330	223,059 49,790	141.2 5.559	135.2 5.323	158.9 6.256	164.5 6.476	2.5 5.5
			2.0 .079	2.0 .079	345,901 77,210	441,101 98,460	153.4 6.039	143.5 5.650	185.1 7.287	195.5 7.697	6.4 14.1
	215 8.4646	40 1.5748	4.7 .185	2.0 .079	286,227 63,890	376,634 84,070	154.3 6.075	145.1 5.713	182.7 7.193	190.9 7.516	6.4 14.1
			2.0 .079	2.0 .079	481,555 107,490	674,957 150,660	153.4 6.039	143.5 5.650	185.1 7.287	195.5 7.697	18.6 40.9
			4.7 .185	2.0 .079	557,357 124,410	887,309 198,060	154.3 6.075	145.1 5.713	182.7 7.194	190.9 7.516	11.8 26.0
			2.5 .098	2.5 .098	539,258 120,370	630,067 140,640	168.7 6.642	154.0 6.063	214.8 8.457	230.0 9.055	14.4 31.7
	260 10.2362	55 2.1654	6.4 .252	2.5 .098	435,277 97,160	520,262 116,130	170.2 6.701	157.0 6.181	211.2 8.315	223.0 8.780	14.5 31.9
			2.5 .098	2.5 .098	804,966 179,680	1,054,637 235,410	168.7 6.642	154.0 6.063	214.8 8.457	230.0 9.055	22.3 49.1
			6.4 .252	2.5 .098	852,858 190,370	1,235,315 275,740	170.2 6.701	157.0 6.181	211.2 8.256	223.0 8.780	29.3 64.5
			4.7 .185	2.0 .079	153,798 34,330	223,059 49,790	141.2 5.559	135.2 5.323	158.9 6.256	164.5 6.476	2.5 5.5
			3.2 .126	2.0 .079	241,875 53,990	399,347 89,140	141.2 5.559	135.3 5.328	158.9 6.256	164.5 6.476	4.2 9.2

Radial roller bearings are manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

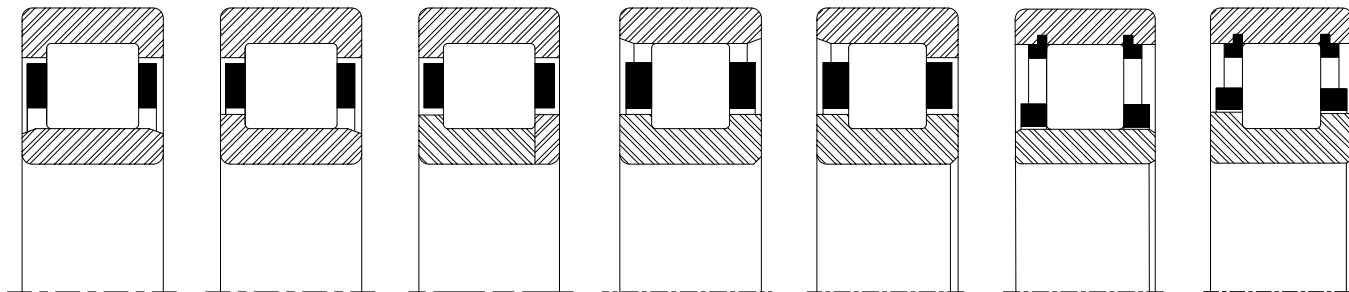
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Cylindrical Roller Bearings

	Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
	E 1022 U	L 1022 U	LP 1022 U	U 1022 E	U 1022 L	E 1022 B	U 1022 B
	NU 222 E	NJ 222 E	NUP 222 E	N 222 E	-	-	-
	E 1222 U	L 1222 U	LP 1222 U	U 1222 E	U 1222 L	E 1222 B	E 1222 B
	NU 2222 E	NJ 2222 E	NUP 2222 E	N 2222 E	-	-	-
	E 5222 U	L 5222 U	LP 5222 U	U 5222 E	U 5222 L	E 5222 B	E 5222 B
	NU 322 E	NJ 322 E	NUP 322 E	N 322 E	-	-	-
	E 1322 U	L 1322 U	LP 1322 U	U 1322 E	U 1322 L	E 1322 B	E 1322 B
	NU 2322 E	NJ 2322 E	NUP 2322 E	N 2322 E	-	-	-
	E 5322 U	L 5322 U	LP 5322 U	U 5322 E	U 5322 L	E 5322 B	E 5322 B
	NU 323	NJ 323	NUP 323	N 323	-	-	-
	E 1323 U	L 1323 U	LP 1323 U	U 1323 E	U 1323 L	E 1323 B	E 1323 B
	E 1024 U	L 1024 U	LP 1024 U	U 1024 E	U 1024 L	E 1024 B	U 1014 B
	E 5024 U	L 5024 U	LP 5024 U	U 5024 E	U 5024 L	E 5024 B	E 5024 B
	NU 224 E	NJ 224 E	NUP 224 E	N 224 E	-	-	-
	E 1224 U	L 1224 U	LP 1224 U	U 1224 E	U 1224 L	E 1224 B	E 1224 B
	NU 2224 E	NJ 2224 E	NUP 2224 E	N 2224 E	-	-	-
	E 5224 U	L 5224 U	LP 5224 U	U 5224 E	U 5224 L	E 5224 B	E 5224 B
	NU 324 E	NJ 324 E	NUP 324 E	N 324 E	-	-	-
	E 1324 U	L 1324 U	LP 1324 U	U 1324 E	U 1324 L	E 1324 B	E 1324 B
	NU 2324 E	NJ 2324 E	NUP 2324 E	N 2324 E	-	-	-
	E 5324 U	L 5324 U	LP 5324 U	U 5324 E	U 5324 L	E 5324 B	E 5324 B

ROLLWAY® Radial Bearings

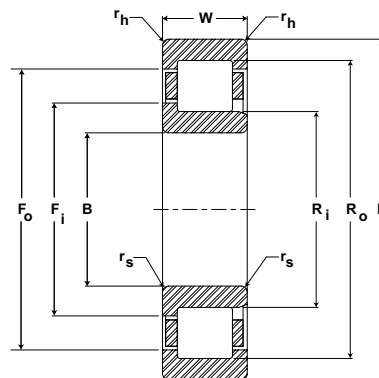


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
130 5.1181	200 7.8740	33	3.2	2.0	204,960	295,098	154.2	147.6	175.5	182.5	3.9
		1.2992	.126	.079	45,750	65,870	6.071	5.811	6.909	7.185	8.6
		52	3.2	2.0	348,454	583,789	154.2	147.6	175.5	182.5	5.9
	230 9.0551	2.0472	.126	.079	77,780	130,310	6.071	5.811	6.909	7.185	13.0
		40	4.7	2.5	307,104	402,125	164.7	155.0	195.2	203.8	7.3
		1.5748	.185	.098	68,550	89,760	6.484	6.102	7.685	8.024	16.1
	280 11.0236	79	4.7	2.5	659,635	1,074,662	164.7	155.0	195.2	203.8	11.4
		3.1250	.185	.098	147,240	239,880	6.484	6.102	7.685	8.024	25.1
		58	4.0	3.2	594,854	704,525	183.0	167.0	231.0	247.0	17.6
		2.2835	.157	.126	132,780	157,260	7.205	6.575	9.094	9.724	38.7
		93	6.4	3.2	500,730	601,216	184.9	170.5	229.8	242.7	17.7
		3.6615	.252	.126	111,770	134,200	7.280	6.713	9.047	9.555	38.9
140 5.5118	210 8.2677	33	4.0	2.0	196,941	284,704	164.3	157.6	185.6	192.4	4.1
		1.2992	.157	.079	43,960	63,550	6.469	6.205	7.307	7.575	9.0
		53	4.0	2.0	334,835	563,226	164.3	157.6	185.6	192.4	9.5
	220 8.6614	2.0866	.157	.079	74,740	125,720	6.469	6.205	7.307	7.575	20.9
		36	2.0	2.0	199,046	274,310	169.4	161.9	192.9	200.0	7.7
		1.4173	.079	.079	44,430	61,230	6.669	6.374	7.594	7.874	16.9
	250 9.8425	63.5	2.0	2.0	412,339	699,552	169.4	161.9	192.0	200.0	10.0
		2.5000	.079	.079	92,040	156,150	6.669	6.374	7.560	7.874	22.0
		42	4.7	2.5	344,646	451,898	179.1	168.5	211.8	221.5	9.1
	300 11.8110	1.6535	.185	.098	76,930	100,870	7.051	6.634	8.339	8.720	20.0
		82.6	4.7	2.5	674,419	1,069,152	179.1	168.5	211.8	221.5	19.1
		3.2500	.185	.098	150,540	238,650	7.051	6.634	8.339	8.720	42.0
		62	4.0	4.0	629,082	769,485	196.0	180.0	247.2	260.0	21.6
		2.4409	.157	.157	140,420	171,760	7.717	7.087	9.732	10.236	47.5
		102	7.9	3.2	558,880	678,630	197.0	181.7	244.3	258.0	21.8
150 5.9055	225 8.8583	4.0157	.311	.126	124,750	151,480	7.756	7.154	9.618	10.157	48.0
		114.3	4.0	4.0	935,110	1,280,922	196.0	180.0	247.2	260.0	39.7
		4.5000	.157	.157	208,730	285,920	7.717	7.087	9.732	10.236	87.3
	235 9.2520	66.7	7.9	3.2	1,140,205	1,701,907	197.0	181.7	244.3	258.0	42.7
		2.6250	.311	.126	254,510	379,890	7.756	7.154	9.618	10.157	93.9
		38	4.0	2.0	390,387	667,206	176.2	168.7	198.9	206.3	7.7
	270 10.6299	1.4961	.157	.079	87,140	148,930	6.937	6.642	7.831	8.122	16.9
		66.7	2.0	2.0	203,840	288,960	182.4	174.6	205.6	212.7	7.0
		2.6250	.079	.079	45,500	64,500	7.181	6.875	8.095	8.374	15.4
		45	2.5	2.5	407,814	523,936	191.6	179.4	228.5	239.7	12.3
		1.7717	.098	.098	91,030	116,950	7.543	7.063	8.996	9.437	27.1
		88.9	6.4	2.5	402,842	519,053	193.0	181.6	231.1	241.7	11.8
	320 12.5984	3.5000	.252	.098	89,920	115,860	7.598	7.150	9.100	9.516	26.0
		177.8	6.4	2.5	878,797	1,414,829	193.0	181.6	231.1	241.7	24.1
		7.0000	.252	.098	196,160	315,810	7.598	7.150	9.100	9.516	53.0
150 5.9055	270 10.6299	177.8	6.4	2.5	1,506,669	2,829,658	193.0	181.6	231.1	241.7	44.5
		7.0000	.252	.098	336,310	631,620	7.598	7.150	9.100	9.516	97.9
		65	3.0	3.0	791,034	976,147	192.8	190.0	264.4	280.0	27.3
	320 12.5984	2.5591	.118	.118	176,570	217,890	7.591	7.480	10.410	11.024	60.1
		123.8	7.9	3.2	1,355,110	1,969,542	208.5	190.9	263.3	279.1	52.7
		4.8750	.311	.126	302,480	439,630	8.209	7.516	10.366	10.988	115.9

Radial Roller bearings are manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

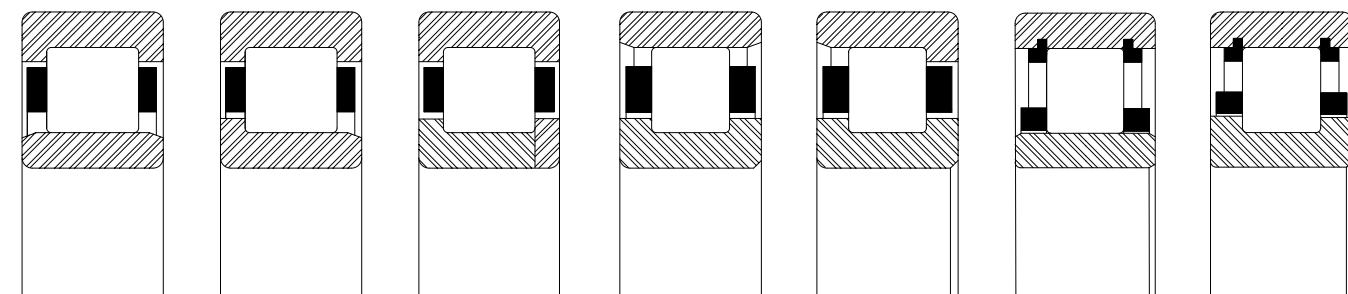
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
E 1026 U	L 1026 U	LP 1026 U	U 1026 E	U 1026 L	E 1026 B	U 1026 B
E 5026 U	L 5026 U	LP 5026 U	U 5026 E	U 5026 L	E 5026 B	U 5026 B
E 1226 U	L 1226 U	LP 1226 U	U 1226 E	U 1226 L	E 1226 B	E 1226 B
E 5226 U	L 5226 U	LP 5226 U	U 5226 E	U 5226 L	E 5226 B	E 5226 B
NU 326 E	NJ 326 E	NUP 326 E	N 326 E	-	-	-
E 1326 U	L 1326 U	LP 1326 U	U 1326 E	U 1326 L	E 1326 B	U 1326 B
NU 2326 E	NJ 2326 E	NUP 2326 E	N 2326 E	-	-	-
E 5326 U	L 5326 U	LP 5326 U	U 5326 E	U 5326 L	E 5326 B	U 5326 B
E 1028 U	L 1028 U	LP 1028 U	U 1028 E	U 1028 L	E 1028 B	U 1028 B
E 5028 U	L 5028 U	LP 5028 U	U 5028 E	U 5028 L	E 5028 B	U 5028 B
MUC 128	MUL 128	MU 128	MCS 128	ML 128	-	-
MUC 5128	MUL 5128	MU 5128	MCS 5128	ML 5128	-	-
E 1228 U	L 1228 U	LP 1228 U	U 1228 E	U 1228 L	E 1228 B	E 1228 B
E 5228 U	L 5228 U	LP 5228 U	U 5228 E	U 5228 L	E 5228 B	E 5228 B
NU 328 E	NJ 328 E	NUP 328 E	N 328 E	-	-	-
E 1328 U	L 1328 U	LP 1328 U	U 1328 E	U 1328 L	E 1328 B	U 1328 B
NU 2328 E	NJ 2328 E	NUP 2328 E	N 2328 E	-	-	-
E 5328 U	L 5328 U	LP 5328 U	U 5328 E	U 5328 L	E 5328 B	U 5328 B
E 5030 U	L 5030 U	LP 5030 U	U 5030 E	U 5030 L	E 5030 B	U 5030 B
MUC 130	MUL 130	MU 130	MCS 130	ML 130	-	-
MUC 5130	MUL 5130	MU 5130	MCS 5130	ML 5130	-	-
MUC 230	MUL 230	MU 230	MCS 230	ML 230	-	-
E 1230 U	L 1230 U	LP 1230 U	U 1230 E	U 1230 L	E 1230 B	U 1230 B
E 5230 U	L 5230 U	LP 5230 U	U 5230 E	U 5230 L	E 5230 B	U 5230 B
E 6230 U	L 6230 U	LP 6230 U	U 6230 E	U 6230 L	E 6230 B	U 6230 B
MUC 330	MUL 330	MU 330	MCS 330	ML 330	-	-
E 5330 U	L 5330 U	LP 5330 U	U 5330 E	U 5330 L	E 5330 B	U 5330 B

ROLLWAY® Radial Bearings

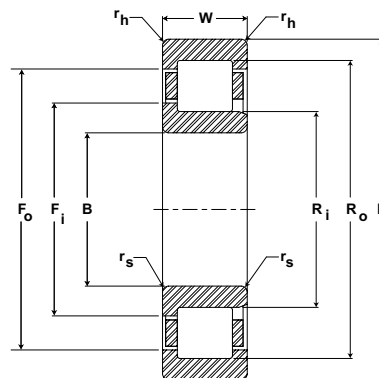


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	
160 6.2992	240 9.4488	38	4.0	2.0	258,272	396,480	188.8	181.2	212.7	219.3	5.9
		1.4961	.157	.079	57,650	88,500	7.433	7.134	8.374	8.634	13.0
		60	4.0	2.0	433,619	771,814	188.8	181.2	212.7	219.3	10.0
	250 9.8425	2.3622	.157	.079	96,790	172,280	7.433	7.134	8.374	8.634	22.0
		40	2.0	2.0	231,750	327,578	192.3	184.2	218.3	225.4	8.2
		1.5748	.079	.079	51,730	73,120	7.571	7.250	8.594	8.874	18.0
	290 11.4173	73	2.0	2.0	498,669	877,408	192.3	184.2	218.3	225.4	14.5
		2.8750	.079	.079	111,310	195,850	7.571	7.250	8.594	8.874	31.9
		48	2.5	2.5	449,882	586,387	206.0	193.7	245.2	257.2	15.5
		1.8898	.098	.098	100,420	130,890	8.110	7.626	9.654	10.126	34.1
		98.4	6.4	2.5	434,067	560,179	205.9	193.9	243.8	257.4	14.1
		3.8750	.252	.098	96,890	125,040	8.106	7.634	9.598	10.134	31.0
		196.9	6.4	2.5	1,598,150	2,992,864	205.9	193.9	243.8	257.4	57.3
		7.7500	.252	.098	356,730	668,050	8.106	7.634	9.598	10.134	126.1
	340 13.3858	68	9.5	3.2	719,622	887,846	223.5	205.9	278.3	294.1	30.9
		2.6772	.374	.126	160,630	198,180	8.799	8.106	10.957	11.579	68.0
			3.0	3.0	815,629	995,456	220.5	203.2	283.7	298.5	32.7
170 6.6929	260 10.2362	42	4.7	2.0	348,230	547,232	202.1	194.9	227.1	238.1	8.6
		1.6535	.185	.079	77,730	122,150	7.957	7.673	8.941	9.374	18.9
		67	4.7	2.0	555,117	996,621	202.1	194.9	227.1	238.1	12.3
	265 10.4331	2.6378	.185	.079	123,910	222,460	7.957	7.673	8.941	9.374	27.1
		76.2	2.5	2.5	296,755	415,386	203.2	193.7	231.8	241.3	16.8
		3.0000	.098	.098	66,240	92,720	8.000	7.626	9.125	9.500	37.0
	310 12.2047	42	2.5	2.5	594,630	1,015,123	203.2	193.7	231.8	241.3	9.5
		1.6535	.098	.098	132,730	226,590	8.000	7.626	9.125	9.500	20.9
		52	6.4	3.2	515,827	678,899	219.1	205.5	261.5	273.6	17.7
	360 14.1732	2.0472	.252	.126	115,140	151,540	8.626	8.091	10.295	10.772	38.9
		104.8	6.4	3.2	1,058,131	1,709,882	219.1	205.5	261.5	273.6	37.7
		4.1250	.252	.126	236,190	381,670	8.626	8.091	10.295	10.772	82.9
		72	3.0	3.0	815,494	1,009,344	235.0	219.1	298.5	314.3	37.7
		2.8346	.118	.118	182,030	225,300	9.252	8.626	11.752	12.374	82.9
		139.7	9.5	3.2	1,653,568	2,473,811	236.0	216.7	295.7	313.3	75.0
180 7.0866	280 11.0236	5.5000	.374	.126	369,100	552,190	9.291	8.531	11.642	12.335	165.0
		46	4.7	2.0	430,886	674,061	215.3	205.6	244.6	254.4	10.9
		1.8110	.185	.079	96,180	150,460	8.476	8.094	9.630	10.016	24.0
		74	4.7	2.0	681,139	1,214,483	215.3	205.6	244.6	254.4	12.3
		2.9134	.185	.079	152,040	271,090	8.476	8.094	9.630	10.016	27.1
		44	2.5	2.5	337,075	476,269	214.4	204.8	245.9	255.6	11.0
	320 12.5984	1.7323	.098	.098	75,240	106,310	8.441	8.062	9.680	10.063	24.2
		82.6	2.5	2.5	698,925	1,229,715	214.4	204.8	245.9	255.6	20.5
		3.2500	.098	.098	156,010	274,490	8.441	8.062	9.680	10.063	45.1
		52	3.0	3.0	483,482	667,475	235.0	222.3	274.1	285.8	17.7
		2.0472	.118	.118	107,920	148,990	9.252	8.752	10.791	11.252	38.9
			6.4	3.2	513,811	683,738	229.9	216.3	272.3	284.4	19.3
			.252	.126	114,690	152,620	9.051	8.516	10.720	11.197	42.5
		108	6.4	3.2	1,053,965	1,722,112	229.9	216.3	272.3	284.4	40.5
	4.2500	.252	.126	235,260	384,400	9.051	8.516	10.720	11.197	89.1	
	75	3.0	3.0	857,920	1,092,134	250.8	231.6	309.9	327.0	43.6	
	2.9528	.118	.118	191,500	243,780	9.874	9.120	12.200	12.874	95.9	

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

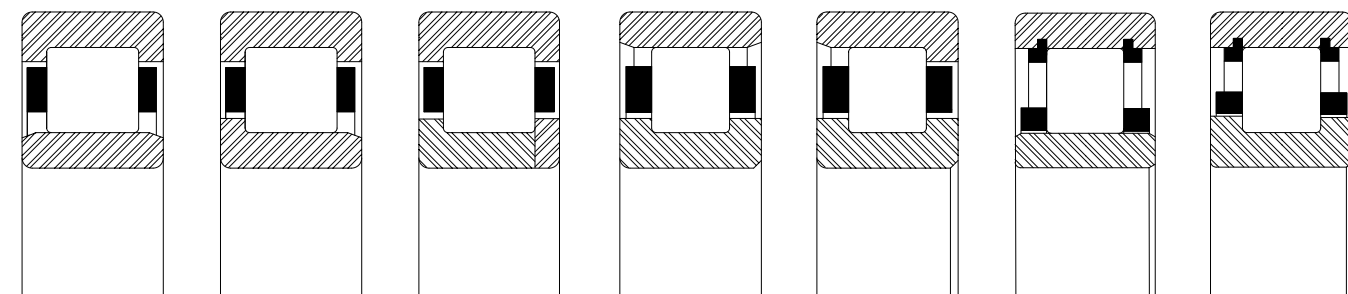
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
E 1032 U	L 1032 U	LP 1032 U	U 1032 E	U 1032 L	E 1032 B	U 1032 B
E 5032 U	L 5032 U	LP 5032 U	U 5032 E	U 5032 L	E 5332 B	U 5332 B
MUC 132	MUL 132	MU 132	MCS 132	ML 132	-	-
MUC 5132	MUL 5132	MU 5132	MCS 5132	ML 5132	-	-
MUC 232	MUL 232	MU 232	MCS 232	ML 232	-	-
E 1232 U	L 1232 U	LP 1232 U	U 1232 E	U 1232 L	E 1232 B	U 1232 B
E 5232 U	L 5232 U	LP 5232 U	U 5232 E	U 5232 L	E 5232 B	U 5330 B
E 6232 U	L 6232 U	LP 6232 U	U 6232 E	U 6232 L	E 6232 B	U 6232 B
E 1332 U	L 1332 U	LP 1332 U	U 1332 E	U 1332 L	E 1332 B	U 1332 B
MUC 332	MUL 332	MU 332	MCS 332	ML 332	-	-
E 1034 U	L 1034 U	LP 1034 U	U 1034 E	U 1034 L	E 1034 B	U 1034 B
E 5034 U	L 5034 U	LP 5034 U	U 5034 E	U 5034 L	E 5034 B	U 5034 B
MUC 5134	MUL 5134	MU 5134	MCS 5134	ML 5134	-	-
MUC 134	MUL 134	MU 134	MCS 134	ML 134	-	-
E 1234 U	L 1234 U	LP 1234 U	U 1234 E	U 1234 L	E 1234 B	U 1234 B
E 5234 U	L 5234 U	LP 5234 U	U 5234 E	U 5234 L	E 5234 B	U 5234 B
MUC 334	MUL 334	MU 334	MCS 334	ML 334	-	-
E 5334 U	L 5334 U	LP 5334 U	U 5334 E	U 5334 L	E 5334 B	U 5334 B
E 1036 U	L 1036 U	LP 1036 U	U 1036 E	U 1036 L	E 1036 B	U 1036 B
E 5036 U	L 5036 U	LP 5036 U	U 5036 E	U 5036 L	E 5036 B	U 5036 B
MUC 136	MUL 136	MU 136	MCS 136	ML 136	-	-
MUC 5136	MUL 5136	MU 5136	MCS 5136	ML 5136	-	-
MUC 236	MUL 236	MU 236	MCS 236	ML 236	-	-
E 1236 U	L 1236 U	LP 1236 U	U 1236 E	U 1236 L	E 1236 B	U 1236 B
E 5236 U	L 5236 U	LP 5236 U	U 5236 E	U 5236 L	E 5236 B	U 5236 B
MUC 336	MUL 336	MU 336	MCS 336	ML 336	-	-

ROLLWAY® Radial Bearings

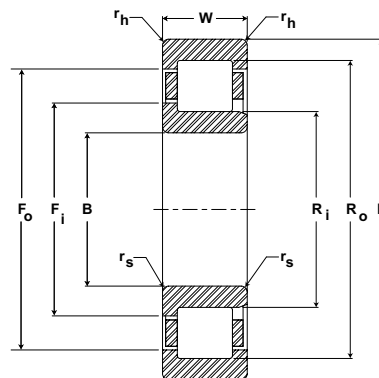


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
190 7.4803	290 11.4173	46	4.7	2.5	428,422	677,376	226.9	215.6	26.3	264.4	10.9
		1.8110	.185	.098	95,630	151,200	8.933	8.488	1.035	10.409	24.0
		75	4.7	2.5	677,197	1,220,486	226.9	215.6	26.3	264.4	19.1
		2.9528	.185	.098	151,160	272,430	8.933	8.488	1.035	10.409	42.0
	300 11.8110	85.7	2.5	2.5	742,022	1,341,805	229.2	219.0	259.7	269.9	23.6
		3.3750	.098	.098	165,630	299,510	9.024	8.623	10.225	10.626	51.9
	300 11.8110	46	2.5	2.5	357,907	525,414	229.2	219.0	259.7	269.9	14.1
		1.8110	.098	.098	79,890	117,280	9.024	8.623	10.225	10.626	31.0
		114.3	7.9	3.2	1,253,862	2,111,245	243.3	228.9	288.2	301.0	45.0
		4.5000	.311	.126	279,880	471,260	9.579	9.012	11.346	11.850	99.0
200 7.8740	340 13.3858	78	4.0	4.0	925,120	1,168,653	262.9	244.5	303.4	346.1	50.0
		3.0709	.157	.157	206,500	260,860	10.350	9.626	11.945	13.626	110.0
	320 12.5984	82	4.7	2.0	783,731	1,384,947	238.6	227.7	271.6	282.3	23.2
		3.2283	.185	.079	174,940	309,140	9.394	8.965	10.693	11.114	51.0
		48	2.5	2.5	431,917	628,365	243.5	231.8	278.9	288.9	17.5
		1.8898	.098	.098	96,410	140,260	9.587	9.126	10.980	11.374	38.5
	360 14.1732	88.9	2.5	2.5	850,214	1,501,069	243.5	231.8	278.9	288.9	30.5
		3.5000	.098	.098	189,780	335,060	9.587	9.126	10.980	11.374	67.1
		58	7.9	3.2	622,810	838,701	257.4	242.2	304.9	318.5	25.9
		2.2835	.311	.126	139,020	187,210	10.134	9.535	12.004	12.539	57.0
210 8.2677	340 13.3858	120.7	7.9	3.2	1,344,358	2,255,546	257.4	242.2	304.9	318.5	55.9
		4.7500	.311	.126	300,080	503,470	10.134	9.535	12.004	12.539	123.0
	380 14.9606	165.1	4.0	4.0	2,114,336	3,434,726	280.5	260.4	346.1	362.0	121.8
		6.5000	.157	.157	471,950	766,680	11.043	10.252	13.626	14.252	268.0
	440 17.3228	50	2.5	2.5	515,738	746,234	257.0	244.5	295.1	308.0	20.9
		1.9685	.098	.098	115,120	166,570	10.118	9.626	11.618	12.126	46.0
		95.3	2.5	2.5	963,379	1,666,426	257.0	244.5	295.1	308.0	37.7
		3.7500	.098	.098	215,040	371,970	10.118	9.626	11.618	12.126	82.9
	480 18.8976	62	3.0	3.0	672,000	945,370	276.5	260.4	323.9	336.6	31.4
		2.4409	.118	.118	150,000	211,020	10.886	10.252	12.752	13.252	69.1
220 8.6614	340 13.3858	127	9.5	3.2	1,573,107	2,663,091	270.1	253.6	320.2	336.2	72.5
		5.0000	.374	.126	351,140	594,440	10.634	9.984	12.606	13.236	159.5
	380 14.9606	84	4.0	4.0	1,095,987	1,434,675	287.8	269.9	359.9	377.8	66.8
		3.3071	.157	.157	244,640	320,240	11.331	10.626	14.169	14.874	147.0
	400 15.7480	75	6.4	2.5	940,352	1,750,470	262.8	251.4	297.3	308.6	30.9
		2.9578	.252	.098	209,900	390,730	10.346	9.898	11.705	12.150	68.0
		98	2.5	2.5	1,031,296	1,841,370	265.4	254.0	307.0	317.5	37.7
		3.8750	.098	.098	230,200	411,020	10.449	10.000	12.085	12.500	82.9
	420 16.5354	65	3.0	3.0	749,190	1,041,421	286.5	269.9	336.6	352.4	36.4
		2.5591	.118	.118	167,230	232,460	11.280	10.626	13.252	13.874	80.1
230 9.0551	370 14.5669	53	2.5	2.5	603,590	878,886	280.2	266.7	323.9	336.6	25.5
		2.0866	.098	.098	134,730	196,180	11.031	10.500	12.752	13.252	56.1
		101.6	2.5	2.5	1,095,002	1,890,157	280.2	266.7	323.9	336.6	44.1
		4.0000	.098	.098	244,420	421,910	11.031	10.500	12.752	13.252	97.0
	420 16.5354	69	3.0	3.0	831,578	1,147,776	299.6	282.6	354.5	371.5	43.2
		2.7165	.118	.118	185,620	256,200	11.795	11.126	13.957	14.626	95.0

Radial Roller bearings and manufactured to the ABMA RBEC-1 tolerance class. Bearing manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request.

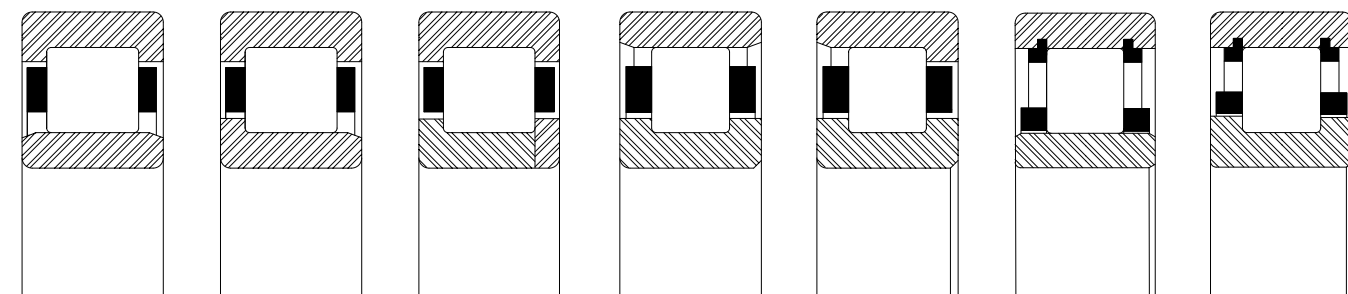
Unless otherwise specified all Rollway radial roller bearings are manufactured to ABMA's RBEC-1 precision class.

*rs and rh are the maximum shaft and housing fillet radius that can be cleared.

Metric dimensions for reference only.

Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.



Cylindrical Roller Bearings

	Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
	E 1038 U	L 1038 U	LP 1038 U	U 1038 E	U 1038 L	E 1038 B	U 1038 B
	E 5038 U	L 5038 U	LP 5038 U	U 5038 E	U 5038 L	E 5038 B	U 5038 B
	MUC 5138	MUL 5138	MU 5138	MCS 5138	ML 5138	-	-
	MUC 138	MUL 138	MU 138	MCS 138	ML 138	-	-
	E 5238 U	L 5238 U	LP 5238 U	U 5238 E	U 5238 L	E 5238 B	U 5238 B
	MUC 338	MUL 338	MU 338	MCS 338	ML 338	-	-
	E 5040 U	L 5040 U	LP 5040 U	U 5040 E	U 5040 L	E 5040 B	U 5040 B
	MUC 140	MUL 140	MU 140	MCS 140	ML 140	-	-
	MUC 5140	MUL 5140	MU 5140	MCS 5140	ML 5140	-	-
	E 1240 U	L 1240 U	LP 1240 U	U 1240 E	U 1240 L	E 1240 B	U 1240 B
	E 5240 U	L 5240 U	LP 5240 U	U 5240 E	U 5240 L	E 5240 B	U 5240 B
	E 5340 U	L 5340 U	LP 5340 U	U 5340 E	U 5340 L	E 5340 B	U 5340 B
	MUC 142	MUL 142	MU 142	MCS 142	ML 142	-	-
	MUC 5142	MUL 5142	MU 5142	MCS 5142	ML 5142	-	-
	MUC 242	MUL 242	MU 242	MCS 242	ML 242	-	-
	E 5242 U	L 5242 U	LP 5242 U	U 5242 E	U 5242 L	E 5242 B	U 5242 B
	MUC 342	MUL 342	MU 342	MCS 342	ML 342	-	-
	E 5044 U	L 5044 U	LP 5044 U	U 5044 E	U 5044 L	E 5044 B	U 5044 B
	MUC 5144	MUL 5144	MU 5144	MCS 5144	ML 5144	-	-
	MUC 244	MUL 244	MU 244	MCS 244	ML 244	-	-
	E 1244 U	L 1244 U	LP 1244 U	U 1244 E	U 1244 L	E 1244 B	U 1244 B
	E 5244 U	L 5244 U	LP 5244 U	U 5244 E	U 5244 L	E 5244 B	U 5244 B
	MUC 146	MUL 146	MU 146	MCS 146	ML 146	-	-
	MUC 5146	MUL 5146	MU 5146	MCS 5146	ML 5146	-	-
	MUC 246	MUL 246	MU 246	MCS 246	ML 246	-	-

ROLLWAY® Radial Bearings

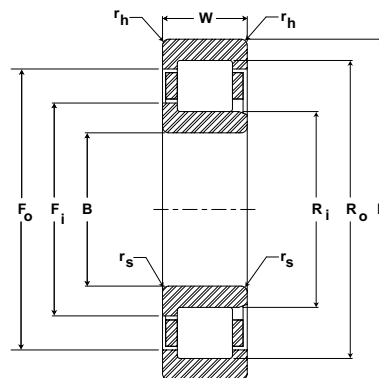


Basic Construction Type: Cylindrical Roller Bearing

Rolling Elements: Crowned Cylindrical Rollers

Bearing Material: Through Hardened Bearing Grade Steel

Retainer Type: Stamped Steel, Segmented Steel, Two Piece Brass, One Piece Land Riding Brass



Cylindrical Roller Bearings

B	D	W	Rs	Rh	C	Co	Fi	Ri	Fo	Ro	Bearing Weight
Bore	Outside Diameter	Width	Corner*		Basic Dynamic Rating	Basic Static Rating	Flange O.D. Inner Race	O.D. Inner Race	Flange I.D. Outer Race	I.D. Outer Race	
mm inch	mm inch	mm inch	mm inch	mm inch	N/lb	N/lb	mm inch	mm inch	mm inch	mm inch	kg lb
240 9.4488	390 15.3545	55	2.5	2.5	694,355	1,003,162	291.6	277.8	342.4	354.0	30.7
		2.1654	.098	.098	154,990	223,920	11.480	10.937	13.480	13.937	67.5
		108	2.5	2.5	1,209,734	2,048,122	291.6	277.8	342.4	354.0	52.7
	440 17.3228	4.2500	.098	.098	270,030	457,170	11.480	10.937	13.480	13.937	115.9
		72	3.0	3.0	931,347	1,283,878	309.1	293.7	373.6	388.9	50.0
		2.8346	.118	.118	207,890	286,580	12.169	11.563	14.709	15.311	110.0
250 9.8425	410 16.1419	146.1	9.5	3.2	2,192,243	3,694,746	311.6	291.2	374.9	393.1	103.0
		5.7500	.374	.126	489,340	824,720	12.268	11.465	14.760	15.476	226.6
		95	4.0	4.0	1,335,488	1,780,621	328.4	308.0	408.3	428.6	95.0
	520 20.4724	3.7402	.157	.157	298,100	397,460	12.929	12.126	16.075	16.874	209.0
		57	3.0	3.0	715,187	1,060,237	308.7	293.7	354.1	369.9	32.3
		2.2441	.118	.118	159,640	236,660	12.154	11.563	13.942	14.563	71.1
260 10.2362	430 16.9291	111.1	3.0	3.0	1,290,733	2,264,998	308.7	293.7	354.1	369.9	60.9
		4.3750	.118	.118	288,110	505,580	12.154	11.563	13.942	14.563	134.0
		196.9	4.0	4.0	2,748,973	4,581,472	354.3	330.2	431.8	450.9	224.8
	480 18.8976	7.7500	.157	.157	613,610	1,022,650	13.949	13.000	17.000	17.752	494.6
		59	3.0	3.0	736,109	1,116,685	322.8	308.0	372.4	384.2	38.2
		2.3228	.118	.118	164,310	249,260	12.709	12.126	14.661	15.126	84.0
280 11.0236	460 18.1102	114.3	3.0	3.0	1,374,061	2,491,328	322.8	308.0	372.4	384.2	69.5
		4.5000	.118	.118	306,710	556,100	12.709	12.126	14.661	15.126	152.9
		158.8	4.0	4.0	2,104,480	3,593,274	336.7	320.7	406.1	422.3	136.0
	540 21.2598	6.2500	.157	.157	469,750	802,070	13.256	12.626	15.988	16.626	299.2
		102	5.0	5.0	1,546,810	2,138,886	365.3	342.9	445.8	469.9	130.5
		4.0157	.197	.197	345,270	477,430	14.382	13.500	17.551	18.500	287.1
300 11.8110	480 18.8970	123.8	3.0	3.0	1,589,683	2,906,400	346.6	330.2	398.8	412.8	82.3
		4.8750	.118	.118	354,840	648,750	13.646	13.000	15.701	16.252	181.1
		165.1	9.5	4.0	2,845,696	4,978,714	355.6	333.0	427.2	447.3	146.8
	580 22.8346	6.5000	.374	.157	635,200	1,111,320	14.000	13.110	16.819	17.610	323.0
		215.9	12.7	5.0	4,261,197	6,441,344	368.0	339.9	487.4	517.7	278.1
		8.5000	.500	.197	951,160	1,437,800	14.488	13.382	19.189	20.382	611.8
320 12.5984	500 19.6850	127	8.0	3.2	1,720,006	3,094,246	360.7	344.5	419.0	433.4	65.5
		5.0000	.315	.126	383,930	690,680	14.201	13.563	16.496	17.063	144.1
		540	85	4.0	1,710,240	2,178,758	366.6	343.8	470.3	496.2	86.3
	530 20.8661	3.3465	.500	.157	381,750	486,330	14.433	13.535	18.516	19.535	189.9
		71	3.0	3.0	982,778	1,531,712	381.3	363.5	437.1	452.4	64.5
		2.7953	.118	.118	219,370	341,900	15.012	14.311	17.209	17.811	141.9
340 13.3850	610 24.0157	130.2	4.0	3.0	1,768,928	3,261,082	381.3	363.5	437.1	452.4	99.5
		5.1250	.157	.118	394,850	727,920	15.012	14.311	17.209	17.811	218.9
		530	133.4	-	1,452,819	2,892,198	415.4	399.3	462.6	475.5	110.0
	660 25.9843	5.2500	-	-	324,290	645,580	16.354	15.720	18.213	18.720	242.0
		146.1	-	-	2,086,560	4,106,054	469.9	453.7	532.8	549.0	154.5
		5.7500	-	-	465,750	916,530	18.500	17.862	20.976	21.614	339.9
440 17.3228	660 25.9843	158.8	-	-	2,180,819	4,490,528	520.8	503.7	582.8	599.0	191.8
		6.2500	-	-	486,790	1,002,350	20.504	19.831	22.945	23.583	422.0

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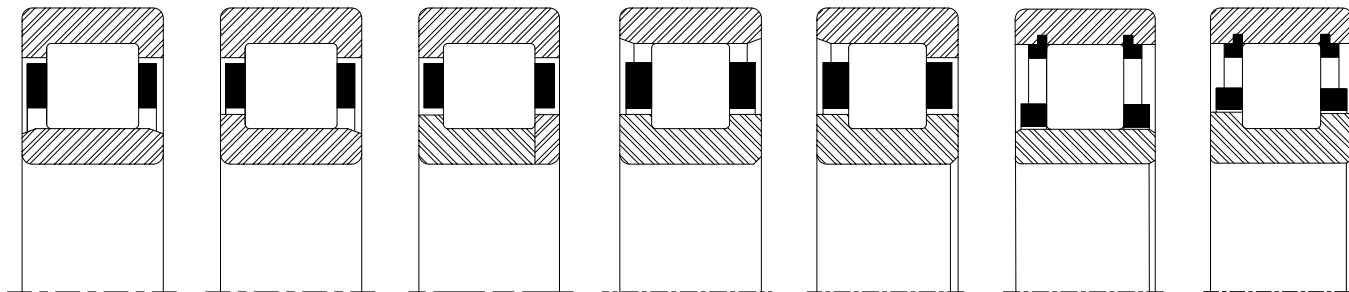
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Cylindrical Roller Bearings

Inner Race Separable Both Directions	Inner Race Separable One Direction	Two Piece Inner Race Four-Flange Design	Outer Race Separable Both Directions	Outer Race Separable One Direction	Inner Race Separable Both Directions	Non-Separable
MUC 148	MUL 148	MU 148	MCS 148	ML 148	-	-
MUC 5148	MUL 5148	MU 5148	MCS 5148	ML 5148	-	-
MUC 248	MUL 248	MU 248	MCS 248	ML 248	-	-
E 5248 U	L 5248 U	LP 5248 U	U 5248 E	U 5248 L	E 5248 B	U 5248 B
MUC 348	MUL 348	MU 348	MCS 348	ML 348	-	-
MUC 150	MUL 150	MU 150	MCS 150	ML 150	-	-
MUC 5150	MUL 5150	MU 5150	MCS 5150	ML 5150	-	-
E 5350 U	L 5350 U	LP 5350 U	U 5350 E	U 5350 L	E 5350 B	U 5350 B
MUC 152	MUL 152	MU 152	MCS 152	ML 152	-	-
MUC 5152	MUL 5152	MU 5152	MCS 5152	ML 5152	-	-
E 5252 U	L 5252 U	LP 5252 U	U 5252 E	U 5252 L	E 5252 B	U 5252 B
MUC 352	MUL 352	MU 352	MCS 352	ML 352	-	-
MUC 5156	MUL 5156	MU 5156	MCS 5156	ML 5156	-	-
E 5256 U	L 5256 U	LP 5256 U	U 5256 E	U 5256 L	E 5256 B	U 5256 B
E 5356 U	L 5356 U	LP 5356 U	U 5356 E	U 5356 L	E 5356 B	U 5356 B
MUC 5160	MUL 5160	MU 5160	MCS 5160	ML 5160	-	-
E 1260 U	L 1260 U	LP 1260 U	U 1260 E	U 1260 L	E 1260 B	U 1260 B
MUC 164	MUL 164	MU 164	MCS 164	ML 164	-	-
MUC 5164	MUL 5164	MU 5164	MCS 5164	ML 5164	-	-
MUC 5168	MUL 5168	MU 5168	MCS 5168	ML 5168	-	-
MUC 5180	MUL 5180	MU 5180	MCS 5180	ML 5180	-	-
MUC 5188	MUL 5188	MU 5188	MCS 5188	ML 5188	-	-

ROLLWAY® Radial Bearings



Load Ratings and Life

Life Calculations

The L10 (rating) life for any given application and bearing selection can be calculated in terms of millions of revolutions by using the bearing Basic Dynamic Rating and applied radial load (or, equivalent radial load in the case of radial bearing applications having combined radial and thrust loads). The L10 life for any given application can be calculated in terms of hours, using the bearing Basic Dynamic Rating, applied load (or equivalent radial load) and suitable speed factors, by the following equation:

$$L_{10} = \left(\frac{C}{P} \right)^{10/3} \times \frac{1,000,000}{60 \times n} = \left(\frac{C}{P} \right)^{10/3} \times \frac{16667}{n}$$

Where:

L_{10} = The # of hours that 90% of identical bearings under ideal conditions will operate at a specific speed and condition before fatigue is expected to occur.

C = Basic Dynamic Rating (lbs)
1,000,000 Revolutions

P = Constant Equivalent Radial Load (lbs)

n = Speed (RPM)

Additionally, the ABMA provides application factors for all types of bearings which need to be considered to determine an adjusted Rated Life (L_{na}). L10 life rating is based on laboratory conditions yet other factors are encountered in actual bearing application that will reduce bearing life. L_{na} life rating takes into account reliability factors, material type, and operating conditions.

$$L_{na} = a_1 \times a_2 \times a_3 \times L_{10}$$

Where:

L_{na} = Adjusted Rated Life.

a_1 = Reliability Factor. Adjustment factor applied where estimated fatigue life is based on reliability other than 90% (See Table No 1).

Table No. 1 Life Adjustment Factor for Reliability

Reliability %	L_{na}	a_1
90	L10	1
95	L5	0.62
96	L4	0.53
97	L3	0.44
98	L2	0.33
99	L1	0.21
50	L50	5

a_2 = Material Factor. Life adjustment for bearing race material. Regal Power Transmission Solutions bearing races are manufactured from bearing quality steel. Therefore the a_2 factor is 1.0.

a_3 = Life Adjustment Factor for Operating Conditions. This factor should take into account the adequacy of lubricant, presence of foreign matter, conditions causing changes in material properties, and unusual loading or mounting conditions. Assuming a properly selected and mounted bearing having adequate seals and lubricant operating below 250°F and tight fitted to the shaft, the a_3 factor should be 1.0.



Load Ratings and Life Continued

Vibration and shock loading can act as an additional loading to the steady expected applied load. When shock or vibration is present, an a3 Life Adjustment Factor can be applied. Shock loading has many variables which often are not easily determined. Typically, it is best to rely on one's experience with the particular application. Consult Application Engineering for assistance with applications involving shock or vibration loading.

The a3 factor takes into account a wide range of application and mounting conditions as well as bearing features and design. Accurate determination of this factor is normally achieved through testing and in-field experience. Regal Power Transmission Solutions offers a wide range of options which can maximize bearing performance. Consult Application Engineering for more information.

Operating Conditions Factor

The life of a bearing is dependent on the operating conditions of the application. Lubrication, effects of the external environment, shaft and housing geometry and mounting, all have an affect on the actual bearing life. To determine a more realistic life calculation, the Operating Conditions Factor (F) can be included into the L_{10} life equation. The actual values determination will be based on experience of the designer and the expected operating conditions.

Using the Operating Conditions Factor (F) in the life equation, L_{10} life in hours now becomes:

$$L_{10} = F \times \left[\left(\frac{C}{P} \right)^{3.33} \times \frac{16667}{n} \right]$$

Proper selection of the F factor demands intimate knowledge of the application. Where little is known of the application, it is recommended that $F = 1$ be selected. As a guide in selecting a realistic value for F, Rollway suggests use of the following, cumulative, individual sub-factors, f , to arrive at the over-all factor, F, thus:

$$F = f_1 \times f_2 \times f_3 \times f_4 \dots$$

The table below defines the application parameters and values recommended for derivation of the individual sub-factors.

Radial Bearing Factors

Factor	Application Condition	Factor Estimates	
		Poor	Excellent
f_1	Lubricant viscosity suitability @ bearing operating temperature (see Lubrication)	.5	1.0
f_2	External environment and provisions for isolation	.5	1.0
f_3	Operational conditions of shaft and housing squareness & rigidity	.5	1.0
f_4	Machine usage; conventional rotating machinery = 1.0 reciprocating machinery = .55 impact-inducing machinery = .25	.25	1.0
f_5	Thrust load accompanying radial load; below permissible thrust load = 1.0 at or near permissible thrust load = .8 exceeding permissible thrust load by 25% = .5	.5	1.0

Thrust Bearing Factors

Factor	Application Condition	Factor Estimates	
		Poor	Excellent
f_1	Lubricant viscosity suitability @ bearing operating temperature (see Lubrication)	.5	1.0
f_2	External environment and provisions for isolation	.5	1.0
f_3	Operational conditions of shaft and housing squareness & rigidity	.5	1.0
f_4	Bearing thrust plate backing system full backing vs partial backing	.5	1.0



ROLLWAY® Radial Bearings

Load Ratings and Life Continued

Variable Load Formula

Root mean load (RML) is to be used when a number of varying loads are applied to a bearing for varying time limits. Maximum loading still must be considered for bearing size selection.

$$\text{RML}^* = \sqrt[10/3]{\frac{(L_1^{10/3} N_1) + (L_2^{10/3} N_2) + (L_3^{10/3} N_3)}{100}}$$

Where:

RML = Root Mean Load (lbs.)

L_1, L_2 , etc. = Load in pounds

N_1, N_2 , etc. = Percent of total time operated at loads L_1, L_2 , etc.

* Apply RML to rating at mean speed to determine resultant life.

Mean Speed Formula

The following formula is to be used when operating speed varies over time.

$$\text{Mean Speed} = \frac{S_1 N_1 + S_2 N_2 + S_3 N_3}{100}$$

S_1, S_2 , etc = Speeds in RPM

N_1, N_2 , etc = Percentage of total time operated
at speeds S_1, S_2 , etc

Bearing Life In Oscillating Applications

The equivalent rotative speed (ERS) is used in life calculations when the bearing does not make complete revolutions during operation. The ERS is then used as the bearing operating speed in the calculation of the L10 (Rating) Life. The formula is based on sufficient angular rotation to have roller paths overlap.

ERS = Equivalent Rotative Speed

**N = Total number of degrees per minute through
which the bearing will rotate.**

$$\text{ERS} = \frac{N}{360}$$

In the above formula, allowance is made for the total number of stress applications on the weakest race per unit time, which, in turn, determines fatigue life and the speed factors. The theory behind fretting corrosion is best explained by the fact that the rolling elements in small angles of oscillation retrace a path over an unchanging area of the inner or outer races where the lubricant is prevented by inertia from flowing in behind the roller as the bearing oscillates in one direction. Upon reversal, this small area of rolling contact is traversed by the same roller in the dry state. The friction of the two unlubricated surfaces causes fretting corrosion and produces failures which are unpredictable from a normal life standpoint.



Load Ratings and Life Continued

With a given bearing selected for an oscillating application, the best lubrication means is a light mineral oil under positive flow conditions. With a light oil, there is a tendency for all areas in the bearing load zone to be immersed in lubricant at all times. The full flow lubrication dictates that any oxidized material which may form is immediately carried away by the lubricant, and since these oxides are abrasive, further wear tends to be avoided. If grease lubrication must be used, it is best to consult with either the bearing manufacturer or the lubricant manufacturer to determine the best possible type of lubricant. Greases have been compounded to resist the detrimental effect of fretting corrosion for such applications.

Static Load Rating

The "static load rating" for rolling element bearings is that uniformly distributed static radial load acting on a non-rotating bearing, which produces a contact stress of 580,000 psi (roller bearings) or 607,000 psi (ball bearings) at the center of the most heavily loaded rolling element. At this stress level, plastic deformation begins to be significant. Experience has shown that the plastic deformation at this stress level can be tolerated in most bearing applications without impairment of subsequent bearing operation. In certain applications where subsequent rotation of the bearing is slow and where smoothness and friction requirements are not too exacting, a higher static load limit can be tolerated. Where extreme smoothness is required or friction requirements are critical, a lower static load limit may be necessary.

Minimum Bearing Load

Skidding, or sliding, of the rolling elements on the raceway instead of a true rolling motion can cause excessive wear. Applications with high speeds and light loading are particularly prone to skidding. As a general guideline, rolling element bearings should be radially loaded at least 2% of Basic Dynamic Rating. For applications where load is light relative to the bearings dynamic load rating, consult Application Engineering for assistance.

High Steady Loads and Shock Loads

Bearing basic dynamic capacity and basic static capacity are determined through a consideration of entirely different factors. The prime consideration for dynamic capacity is the magnitude of the stressed volume of metal and the probability that it will endure a given number of loading cycles. For static capacity, the prime consideration is the influence of the elastic limit and rupture limit as manifested by the extent of the permanent deformations that occur. In view of the seemingly great difference in bases for consideration of dynamic and static capacities, it might be concluded that they bear no relation to one another. Such is not always the case when considering very high steady loads or shock loads present in a rotating bearing. The extent to which these loads approach (or exceed) the basic static capacity will determine the validity of the use of the life formula. More explicitly, when the following relationship exists, ordinary means may be used in determining bearing life.

$$\frac{C_0}{f_s P_0} \geq \left(\frac{C/P}{33 \frac{1}{3}} \right)^{0.30}$$

Where: C_0 = Bearing basic static capacity-lbs

P_0 = Value of the radial load or maximum shock load-lbs

f_s = Safety factor for high radial or shock loads (dependent on duration of peak load and type of bearing service demanded throughout life of bearing in given application)

$f_s = 0.5$ for occasional high steady load but no shock

$f_s = 1.0$ for continuous high steady load but no shock

$f_s = 2.0$ for maximum shock loads and/or where very smooth subsequent bearing operation is required

C, P = As previously defined

n = Rotational speed - rpm

A warning note on use of the above relation: even when the solution indicates that conventional means may be used in estimating bearing life, such a fatigue life forecast becomes invalid where less-than-optimum lubrication permits shock loads to induce fretting wear (false brinelling).

ROLLWAY® Radial Bearings

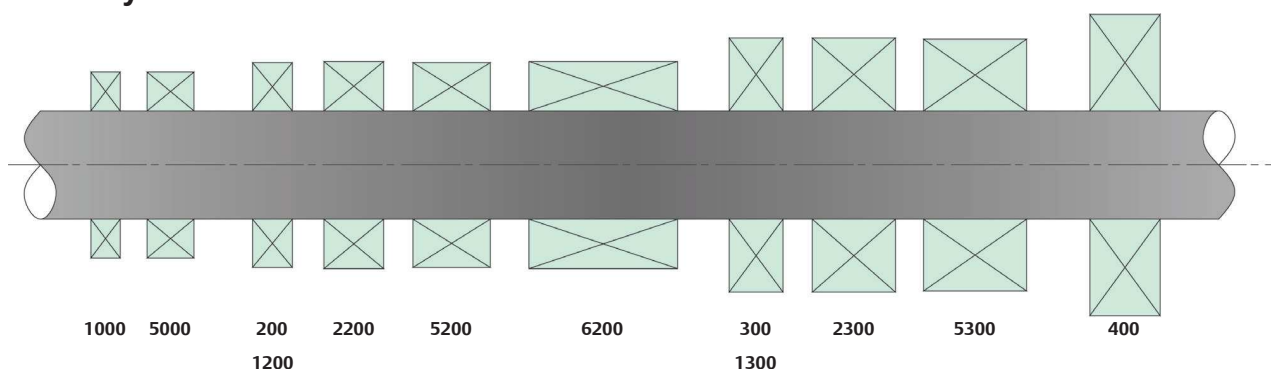


Radial Engineering Section

Rollway cylindrical radial roller bearings are available in a vast variety of sizes and configurations ranging from standard cataloged, 45mm ID bearings to 1,016 mm outside diameter, special engineered bearings.

The ABMA has established standard design criteria for radial roller bearings. It has defined standard series for the roller bearings by identifying the outside diameter and width for a given bore diameter. The illustration below demonstrates the differences in cross section for the given series.

Rollway Series Codes



The races and rollers in standard Rollway bearings are made of vacuum-degassed, high alloy, through-hardened and/or case carburized steels that are stabilized for operation up to 250°F for case carburized steel and 335°F for through-hardened steels. For operating temperatures in excess of 335°F, special materials and/or stabilization procedures are necessary.

All Rollway bearings are made with crowned rollers, which satisfy the general requirements for modified-line contact, in accordance with ABMA definitions. The Rollway crowning technique is a highly developed technology including analytical, experimental, processing and quality control techniques to ensure the following:

1. A minimization of end effects and stress concentrations under design load conditions.
2. Detailed understanding and the necessary controls for demanding applications where reliability and higher theoretical capacities are essential.

Vacuum-degassed steels are used in standard bearings; however, consumable-electrode remelted steels (from either air CEVM or vacuum-melted electrodes VIMVAR) are available in all alloys and will be supplied upon request. We also manufacture low quantities of bearing designs with M-50 tool steel for applications requiring high temperature hardness and average operating temperatures over 400°F but less than 800°F.

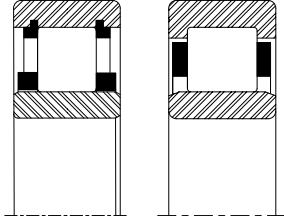
Designs

Rollway cylindrical radial roller bearings are available in a vast variety of sizes and configurations. The different bearing configurations are described on page E-5 and listed in the bearing product table starting on page E-15. Over the years, the Rollway product offering has increased. Each new product line has its own numbering system, resulting in the current offering of multiple nomenclatures. The three basic numbering systems are Tru-Rol, MAX, and ISO. These three nomenclature systems are defined on the following charts:

Rollway cylindrical radial roller bearings are available in a vast variety of sizes and configurations ranging from standard cataloged, 45mm ID bearings to 1,016 mm outside diameter, special engineered bearings. This section of the catalog covers Rollway cylindrical radial roller bearing configurations, part numbering, material, retainer design and limiting speeds.



Radial Engineering Section continued



Configuration and Numbering System Inner Race Separable, Both Directions

Number Systems

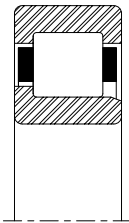
E-####-U

E-####-B

MUC-####

NU-###

Two-flange (or retaining rings) outer race, straight inner race, separable bearing. For applications where axial float in both directions is desired. Roller assembly remains with the outer race.



Inner Race Separable, One Direction

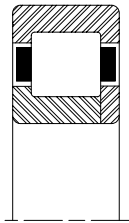
Number Systems

L-####-U

MUL-####

NJ-###

Two-flange outer race, one-flange inner race, separable bearing. For applications where axial float in one direction and axial retention in the other direction is desired. Roller assembly remains with the outer race. Will carry light thrust loads in one axial direction.



Two Piece Inner Race, Four-Flange Design

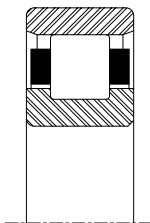
Number Systems

LP-####-U

MU-####

NUP-###

Two-flange outer race, two-flange inner race with one flange plate, separable bearing. For applications where axial retention in both directions is desired. Roller assembly remains with the outer race. Will carry light thrust loads in both axial directions.



Outer Race Separable Both Directions

Number Systems

U-####-E

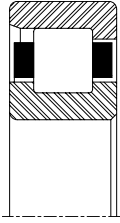
MCS-####

N-###

Straight outer race, two-flange inner race, separable bearing. For applications where axial float is desired. Roller assembly remains with the inner race.



Radial Engineering Section continued



Outer Race Separable One Direction

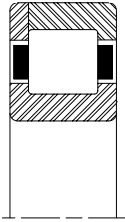
Number Systems

U-####-L

ML-####

One-flange outer race, two-flange inner race, separable bearing. For applications where axial float in one direction and axial retention in the other directions is desired. Roller assembly remains with the inner race.

Will carry light thrust loads in one direction.



Two-Piece Outer Race Four-Flange Design

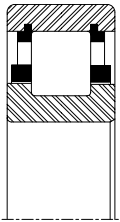
Number Systems

U-####-LP

MN-####

Two-flange outer race with one flange plate, two-flange inner race, separable bearing. For applications where axial retention in both directions is desired.

Roller assembly remains with the inner race. Will carry light thrust loads in both axial directions.



Non-Separable

Number Systems

U-####-B

MS-####

Or when supplied with a full complement of rollers.

Number Systems

UM-####-B

M-####

Two snap-ring flange outer race, two-flange inner race, non-separable bearing.

No axial retainer of outer race is required when inner race is properly mounted on shaft. Will not carry thrust loads.

Precision and Tolerance

Standard catalog, radial roller bearings are manufactured to the ABMA RBEC-1 tolerance class. Many applications may require greater precision than standard because of high rotational speeds or other exacting requirements. Bearings manufactured to either RBEC-3, RBEC-5 or special tolerance classes are also available upon request."



Radial Engineering Section continued

Standard Tolerances RBEC-1

Bore Diameter		Bore Tolerance		Width Tolerance	
over	incl	high (+)	low (-)	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
0.0000 0	1.1810 30	0.0000 0.0000	0.0004 0.0102	0.0000 0.0000	0.0047 0.1194
1.1810 30	1.9685 50	0.0000 0.0000	0.0005 0.0127	0.0000 0.0000	0.0047 0.1194
1.9685 50	3.1496 80	0.0000 0.0000	0.0006 0.0152	0.0000 0.0000	0.0059 0.1499
3.1496 80	4.7244 120	0.0000 0.0000	0.0008 0.0203	0.0000 0.0000	0.0079 0.2007
4.7244 120	7.0866 180	0.0000 0.0000	0.0010 0.0254	0.0000 0.0000	0.0098 0.2489
7.0866 180	9.8425 250	0.0000 0.0000	0.0012 0.0305	0.0000 0.0000	0.0118 0.2997
9.8425 250	12.4016 315	0.0000 0.0000	0.0014 0.0356	0.0000 0.0000	0.0138 0.3505
12.4016 315	15.7480 400	0.0000 0.0000	0.0016 0.0406	0.0000 0.0000	0.0157 0.3988
15.7480 400	19.6850 500	0.0000 0.0000	0.0018 0.0457	0.0000 0.0000	0.0177 0.4496
19.6850 500	24.8031 630	0.0000 0.0000	0.0020 0.0508	0.0000 0.0000	0.0197 0.5004
24.8031 630	31.4961 800	0.0000 0.0000	0.0030 0.0762	0.0000 0.0000	0.0295 0.7493

Outside Diameter		Outside Diameter Tolerance	
over	incl	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm
1.1810 30	1.9685 50	0.0000 0.0000	0.0005 0.0127
1.9685 50	3.1496 80	0.0000 0.0000	0.0005 0.0127
3.1496 80	4.7244 120	0.0000 0.0000	0.0006 0.0152
4.7244 120	5.9055 150	0.0000 0.0000	0.0007 0.0178
5.9055 150	7.0866 180	0.0000 0.0000	0.0010 0.0254
7.0866 180	9.8425 250	0.0000 0.0000	0.0012 0.0305
9.8425 250	12.4016 315	0.0000 0.0000	0.0014 0.0356
12.4016 315	15.7480 400	0.0000 0.0000	0.0016 0.0406
15.7480 400	19.6850 500	0.0000 0.0000	0.0018 0.0457
19.6850 500	24.8031 630	0.0000 0.0000	0.0020 0.0508
24.8031 630	31.4961 800	0.0000 0.0000	0.0030 0.0762
31.4961 800	39.3701 1,000	0.0000 0.0000	0.0039 0.0991
39.3701 1,000	49.2126 1,250	0.0000 0.0000	0.0049 0.1245

Standard Tolerances RBEC-3

Bore Diameter		Bore Tolerance		Width Tolerance	
over	incl	high (+)	low (-)	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
0.0000 0	1.1810 30	0.0000 0.0000	0.00030 0.00762	0.0000 0.0000	0.0047 0.1194
1.1810 30	1.9685 50	0.0000 0.0000	0.00040 0.01016	0.0000 0.0000	0.0047 0.1194
1.9685 50	3.1496 80	0.0000 0.0000	0.00045 0.01143	0.0000 0.0000	0.0059 0.1499
3.1496 80	4.7244 120	0.0000 0.0000	0.00060 0.01524	0.0000 0.0000	0.0079 0.2007
4.7244 120	7.0866 180	0.0000 0.0000	0.00070 0.01778	0.0000 0.0000	0.0098 0.2489
7.0866 180	9.8425 250	0.0000 0.0000	0.00085 0.02159	0.0000 0.0000	0.0118 0.2997
9.8425 250	12.4016 315	0.0000 0.0000	0.00100 0.02540	0.0000 0.0000	0.0138 0.3505
12.4016 315	15.7480 400	0.0000 0.0000	0.00120 0.03048	0.0000 0.0000	0.0157 0.3988
15.7480 400	19.6850 500	0.0000 0.0000	0.00140 0.03556	0.0000 0.0000	0.0177 0.4496
19.6850 500	24.8031 630	0.0000 0.0000	0.00600 0.15240	0.0000 0.0000	0.0197 0.5004

Outside Diameter		Outside Diameter Tolerance	
over	incl	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm
1.1811 30	1.9685 50	0.0000 0.0000	0.00035 0.00889
1.9685 50	3.1496 80	0.0000 0.0000	0.00045 0.01143
3.1496 80	4.7244 120	0.0000 0.0000	0.00050 0.01270
4.7244 120	5.9055 150	0.0000 0.0000	0.00060 0.01524
5.9055 150	7.0866 180	0.0000 0.0000	0.00070 0.01778
7.0866 180	9.8425 250	0.0000 0.0000	0.00080 0.02032
9.8425 250	12.4016 315	0.0000 0.0000	0.00100 0.02540
12.4016 315	15.7480 400	0.0000 0.0000	0.00110 0.02794
15.7480 400	19.6850 500	0.0000 0.0000	0.00130 0.03302
19.6850 500	24.8031 630	0.0000 0.0000	0.00150 0.03810
24.8031 630	31.4961 800	0.0000 0.0000	0.00180 0.04572

Radial Engineering Section continued

Standard Tolerances RBEC-5

Bore Diameter		Bore Tolerance		Width Tolerance	
over	incl	high (+)	low (-)	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
0.0000 0	1.1810 30	0.0000 0.0000	0.00025 0.00635	0.0000 0.0000	0.0047 0.1194
1.1810 30	1.9685 50	0.0000 0.0000	0.00030 0.00762	0.0000 0.0000	0.0047 0.1194
1.9685 50	3.1496 80	0.0000 0.0000	0.00035 0.00889	0.0000 0.0000	0.0059 0.1499
3.1496 80	4.7244 120	0.0000 0.0000	0.00040 0.01016	0.0000 0.0000	0.0079 0.2007
4.7244 120	7.0866 180	0.0000 0.0000	0.00050 0.01270	0.0000 0.0000	0.0098 0.2489
7.0866 180	9.8425 250	0.0000 0.0000	0.00065 0.01651	0.0000 0.0000	0.0118 0.2997
9.8425 250	12.4016 315	0.0000 0.0000	0.00070 0.01778	0.0000 0.0000	0.0138 0.3505
12.4016 315	15.7480 400	0.0000 0.0000	0.00090 0.02286	0.0000 0.0000	0.0157 0.3988

Outside Diameter		Outside Diameter Tolerance	
over	incl	high (+)	low (-)
inch mm	inch mm	inch mm	inch mm
1.1811 30	1.9685 50	0.0000 0.0000	0.00030 0.00762
1.9685 50	3.1496 80	0.0000 0.0000	0.00035 0.00889
3.1496 80	4.7244 120	0.0000 0.0000	0.00040 0.01016
4.7244 120	5.9055 150	0.0000 0.0000	0.00045 0.01143
5.9055 150	7.0866 180	0.0000 0.0000	0.00050 0.01270
7.0866 180	9.8425 250	0.0000 0.0000	0.00060 0.01524
9.8425 250	12.4016 315	0.0000 0.0000	0.00070 0.01778
12.4016 315	15.7480 400	0.0000 0.0000	0.00080 0.02032
15.7480 400	19.6850 500	0.0000 0.0000	0.00090 0.02286
19.6850 500	24.8031 630	0.0000 0.0000	0.00110 0.02794

Internal Clearance

Unmounted internal radial clearance may be determined by two methods:

1. Dimensionally from the geometry of the bearing
2. By an inspection gaging procedure prescribed in the ABMA Standards handbook

Dimensionally, internal radial clearance is equal to the bore of the outer race minus the sum of the inner race OD and two roller diameters. The gaging procedure specifies that one of the bearing races be fixed horizontally on a flat plate. A specified radial load is then applied to the unsupported race, alternately, in diametrically opposing directions. The internal radial clearance is the total displacement of the unsupported race.

The sole reason for manufacturing bearings with differing internal radial clearance is to give the designer a means to achieve predetermined clearance in the mounted revolving bearing. In determining this final running clearance it is necessary to take into consideration, in addition to the effects of shaft, housing interference fits and surface finish, the desire to meet one or more of the following conditions:

1. Optimum load distribution through the rollers to result in maximum life
2. Minimum bearing operating temperature
3. Minimum bearing torque
4. Minimum bearing noise level

The group classification of unmounted radial internal clearance should be specified only after a complete analysis of the resultant clearance of the mounted and operating bearing. The commonly available unmounted internal clearances of Rollway bearings are shown in the following tables. In general, Rollway standard internal clearances for the Tru-Rol and Max numbering systems are equivalent to the ISO C3 clearance.



Radial Engineering Section continued

Radial Bearing Unmounted Internal Clearance

Clearance Codes

Used on Bearings With Tru-Rol and Max Numbering Systems

Bearing Bore Dia		003		005		006 -Standard		007		009	
Over	Up to & include										
inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
0.0000 0	0.5906 15	0.0003 0.0076	0.0011 0.0279	0.0009 0.0229	0.0017 0.0432	0.0010 0.0254	0.0018 0.0457	0.0011 0.0279	0.0019 0.0483	-	-
0.5906 15	0.6693 17	0.0004 0.0102	0.0012 0.0305	0.0009 0.0229	0.0017 0.0432	0.0010 0.0254	0.0018 0.0457	0.0012 0.0305	0.0020 0.0508	-	-
0.6693 17	0.7874 20	0.0005 0.0127	0.0013 0.0330	0.0010 0.0254	0.0018 0.0457	0.0012 0.0305	0.0020 0.0508	0.0014 0.0356	0.0022 0.0559	-	-
0.7874 20	0.9843 25	0.0005 0.0127	0.0015 0.0381	0.0011 0.0279	0.0021 0.0533	0.0013 0.0330	0.0023 0.0584	0.0015 0.0381	0.0025 0.0635	0.0024 0.0610	0.0034 0.0864
0.9843 25	1.1811 30	0.0006 0.0152	0.0016 0.0406	0.0013 0.0330	0.0023 0.0584	0.0015 0.0381	0.0025 0.0635	0.0017 0.0432	0.0027 0.0686	0.0027 0.0686	0.0037 0.0940
1.1811 30	1.3780 35	0.0007 0.0178	0.0017 0.0432	0.0015 0.0381	0.0025 0.0635	0.0017 0.0432	0.0027 0.0686	0.0019 0.0483	0.0029 0.0737	0.0030 0.0762	0.0040 0.1016
1.3780 35	1.5748 40	0.0008 0.0203	0.0018 0.0457	0.0016 0.0406	0.0026 0.0660	0.0018 0.0457	0.0028 0.0711	0.0020 0.0508	0.0030 0.0762	0.0032 0.0813	0.0042 0.1067
1.5748 40	1.7717 45	0.0008 0.0203	0.0020 0.0508	0.0017 0.0432	0.0029 0.0737	0.0020 0.0508	0.0032 0.0813	0.0022 0.0559	0.0034 0.0864	0.0036 0.0914	0.0048 0.1219
1.7717 45	1.9685 50	0.0009 0.0229	0.0021 0.0533	0.0017 0.0432	0.0029 0.0737	0.0020 0.0508	0.0032 0.0813	0.0023 0.0584	0.0035 0.0889	0.0036 0.0914	0.0048 0.1219
1.9685 50	2.1654 55	0.0010 0.0254	0.0022 0.0559	0.0019 0.0483	0.0031 0.0787	0.0022 0.0559	0.0034 0.0864	0.0025 0.0635	0.0037 0.0940	0.0039 0.0991	0.0051 0.1295
2.1654 55	2.3622 60	0.0011 0.0279	0.0023 0.0584	0.0022 0.0559	0.0034 0.0864	0.0025 0.0635	0.0037 0.0940	0.0028 0.0711	0.0040 0.1016	0.0044 0.1118	0.0056 0.1422
2.3622 60	2.5197 64	0.0012 0.0305	0.0024 0.0610	0.0023 0.0584	0.0035 0.0889	0.0025 0.0635	0.0037 0.0940	0.0029 0.0737	0.0041 0.1041	0.0046 0.1168	0.0058 0.1473
2.5197 64	2.7559 70	0.0012 0.0305	0.0026 0.0660	0.0024 0.0610	0.0038 0.0965	0.0027 0.0686	0.0041 0.1041	0.0030 0.0762	0.0044 0.1118	0.0048 0.1219	0.0062 0.1575
2.7559 70	2.9528 75	0.0013 0.0330	0.0027 0.0686	0.0026 0.0660	0.0040 0.1016	0.0030 0.0762	0.0044 0.1118	0.0033 0.0838	0.0047 0.1194	0.0052 0.1321	0.0066 0.1676
2.9528 75	3.1496 80	0.0014 0.0356	0.0028 0.0711	0.0026 0.0660	0.0040 0.1016	0.0030 0.0762	0.0044 0.1118	0.0034 0.0864	0.0048 0.1219	0.0052 0.1321	0.0066 0.1676
3.1496 80	3.3465 85	0.0014 0.0356	0.0030 0.0762	0.0028 0.0711	0.0044 0.1118	0.0032 0.0813	0.0048 0.1219	0.0036 0.0914	0.0052 0.1321	0.0056 0.1422	0.0072 0.1829
3.3465 85	3.5433 90	0.0014 0.0356	0.0030 0.0762	0.0028 0.0711	0.0044 0.1118	0.0032 0.0813	0.0048 0.1219	0.0036 0.0914	0.0052 0.1321	0.0056 0.1422	0.0072 0.1829
3.5433 90	3.7402 95	0.0016 0.0406	0.0032 0.0813	0.0030 0.0762	0.0046 0.1168	0.0034 0.0864	0.0050 0.1270	0.0038 0.0965	0.0054 0.1372	0.0059 0.1499	0.0075 0.1905
3.7402 95	3.9370 100	0.0016 0.0406	0.0032 0.0813	0.0031 0.0787	0.0047 0.1194	0.0035 0.0889	0.0051 0.1295	0.0039 0.0991	0.0055 0.1397	0.0061 0.1549	0.0077 0.1956
3.9370 100	4.1339 105	0.0017 0.0432	0.0035 0.0889	0.0032 0.0813	0.0050 0.1270	0.0037 0.0940	0.0055 0.1397	0.0041 0.1041	0.0059 0.1499	0.0064 0.1626	0.0082 0.2083
4.1339 105	4.3307 110	0.0017 0.0432	0.0035 0.0889	0.0033 0.0838	0.0051 0.1295	0.0038 0.0965	0.0056 0.1422	0.0043 0.1092	0.0061 0.1549	0.0066 0.1676	0.0084 0.2134
4.3307 110	4.7244 120	0.0019 0.0483	0.0037 0.0940	0.0036 0.0914	0.0054 0.1372	0.0041 0.1041	0.0059 0.1499	0.0046 0.1168	0.0064 0.1626	0.0071 0.1803	0.0089 0.2261
4.7244 120	5.1181 130	0.0020 0.0508	0.0040 0.1016	0.0039 0.0991	0.0059 0.1499	0.0044 0.1118	0.0064 0.1626	0.0049 0.1245	0.0069 0.1753	0.0076 0.1930	0.0096 0.2438
5.1181 130	5.5118 140	0.0022 0.0559	0.0042 0.1067	0.0042 0.1067	0.0062 0.1575	0.0048 0.1219	0.0068 0.1727	0.0054 0.1372	0.0074 0.1880	0.0083 0.2108	0.0103 0.2616
5.5118 140	5.9055 150	0.0023 0.0584	0.0045 0.1143	0.0045 0.1143	0.0067 0.1702	0.0051 0.1295	0.0073 0.1854	0.0057 0.1448	0.0079 0.2007	0.0088 0.2235	0.0110 0.2794
5.9055 150	6.2992 160	0.0025 0.0635	0.0047 0.1194	0.0048 0.1219	0.0070 0.1778	0.0054 0.1372	0.0076 0.1930	0.0060 0.1524	0.0082 0.2083	0.0093 0.2362	0.0115 0.2921
6.2992 160	6.6929 170	0.0027 0.0686	0.0049 0.1245	0.0050 0.1270	0.0072 0.1829	0.0057 0.1448	0.0079 0.2007	0.0064 0.1626	0.0086 0.2184	0.0097 0.2464	0.0119 0.3023
6.6929 170	7.0866 180	0.0028 0.0711	0.0052 0.1321	0.0053 0.1346	0.0077 0.1956	0.0060 0.1524	0.0084 0.2134	0.0067 0.1702	0.0091 0.2311	0.0130 0.3302	0.0127 0.3226
7.0866 180	7.4803 190	0.0030 0.0762	0.0054 0.1372	0.0056 0.1422	0.0080 0.2032	0.0063 0.1600	0.0087 0.2210	0.0072 0.1829	0.0096 0.2438	0.0110 0.2794	0.0134 0.3404
7.4803 190	7.8740 200	0.0032 0.0813	0.0058 0.1473	0.0059 0.1499	0.0085 0.2159	0.0067 0.1702	0.0093 0.2362	0.0075 0.1905	0.0101 0.2565	0.0115 0.2921	0.0141 0.3581
7.8740 200	8.6614 220	0.0035 0.0889	0.0061 0.1549	0.0063 0.1600	0.0089 0.2261	0.0072 0.1829	0.0098 0.2489	0.0080 0.2032	0.0106 0.2692	-	-
8.6614 220	9.4488 240	0.0038 0.0965	0.0066 0.1676	0.0070 0.1778	0.0098 0.2489	0.0078 0.1981	0.0106 0.2692	0.0087 0.2210	0.0115 0.2921	-	-
9.4488 240	10.2362 260	0.0042 0.1067	0.0070 0.1778	0.0076 0.1930	0.0104 0.2642	0.0085 0.2159	0.0113 0.2870	0.0096 0.2438	0.0124 0.3150	-	-
10.2362 260	11.0236 280	0.0045 0.1143	0.0075 0.1905	0.0080 0.2032	0.0110 0.2794	0.0090 0.2286	0.0120 0.3048	0.0101 0.2565	0.0131 0.3327	-	-
11.0236 280	11.8110 300	0.0049 0.1245	0.0079 0.2007	0.0085 0.2159	0.0115 0.2921	0.0097 0.2464	0.0127 0.3226	0.0109 0.2769	0.0139 0.3531	-	-
11.8110 300	12.5984 320	0.0053 0.1346	0.0083 0.2108	0.0093 0.2362	0.0123 0.3124	0.0105 0.2667	0.0135 0.3429	0.0117 0.2972	0.0147 0.3734	-	-



Radial Engineering Section continued

Radial Bearing Unmounted Internal Clearance

Clearance Codes

Used on Bearings With ISO Numbering Systems

Bearing Bore Dia		C2		C0 Standard		C3		C4		C5	
Over	Up to & include										
inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm	inch mm
0.0000 0	0.3937 10	0.0000 0.0000	0.0012 0.0305	0.0004 0.0102	0.0016 0.0406	0.0010 0.0254	0.0022 0.0559	0.0014 0.0356	0.0026 0.0660	0.0022 0.0559	0.0033 0.0838
0.3937 10	0.7087 18	0.0000 0.0000	0.0012 0.0305	0.0004 0.0102	0.0016 0.0406	0.0010 0.0254	0.0022 0.0559	0.0014 0.0356	0.0026 0.0660	0.0022 0.0559	0.0033 0.0838
0.7087 18	0.9449 24	0.0000 0.0000	0.0012 0.0305	0.0004 0.0102	0.0016 0.0406	0.0010 0.0254	0.0022 0.0559	0.0014 0.0356	0.0026 0.0660	0.0022 0.0559	0.0033 0.0838
0.9449 24	1.1811 30	0.0000 0.0000	0.0012 0.0305	0.0004 0.0102	0.0018 0.0457	0.0012 0.0305	0.0026 0.0660	0.0016 0.0406	0.0028 0.0711	0.0024 0.0610	0.0037 0.0940
1.1811 30	1.5748 40	0.0000 0.0000	0.0014 0.0356	0.0006 0.0152	0.0020 0.0508	0.0014 0.0356	0.0028 0.0711	0.0018 0.0457	0.0032 0.0813	0.0028 0.0711	0.0041 0.1041
1.5748 40	1.9685 50	0.0002 0.0051	0.0016 0.0406	0.0008 0.0203	0.0022 0.0559	0.0016 0.0406	0.0030 0.0762	0.0022 0.0559	0.0035 0.0889	0.0033 0.0838	0.0047 0.1194
1.9685 50	2.5591 65	0.0002 0.0051	0.0018 0.0457	0.0008 0.0203	0.0026 0.0660	0.0018 0.0457	0.0035 0.0889	0.0026 0.0660	0.0041 0.1041	0.0039 0.0991	0.0055 0.1397
2.5591 65	3.1496 80	0.0002 0.0051	0.0022 0.0559	0.0010 0.0254	0.0030 0.0762	0.0022 0.0559	0.0041 0.1041	0.0030 0.0762	0.0049 0.1245	0.0045 0.1143	0.0065 0.1651
3.1496 80	3.9370 100	0.0004 0.0102	0.0024 0.0610	0.0012 0.0305	0.0032 0.0813	0.0026 0.0660	0.0045 0.1143	0.0035 0.0889	0.0055 0.1397	0.0057 0.1448	0.0077 0.1956
3.9370 100	4.7244 120	0.0004 0.0102	0.0026 0.0660	0.0014 0.0356	0.0035 0.0889	0.0032 0.0813	0.0053 0.1346	0.0041 0.1041	0.0063 0.1600	0.0065 0.1651	0.0087 0.2210
4.7244 120	5.5118 140	0.0004 0.0102	0.0030 0.0762	0.0016 0.0406	0.0041 0.1041	0.0035 0.0889	0.0061 0.1549	0.0045 0.1143	0.0071 0.1803	0.0073 0.1854	0.0098 0.2489
5.5118 140	6.2992 160	0.0006 0.0152	0.0032 0.0813	0.0020 0.0508	0.0045 0.1143	0.0039 0.0991	0.0065 0.1651	0.0051 0.1295	0.0077 0.1956	0.0083 0.2108	0.0108 0.2743
6.2992 160	7.0866 180	0.0008 0.0203	0.0034 0.0864	0.0024 0.0610	0.0049 0.1245	0.0043 0.1092	0.0069 0.1753	0.0059 0.1499	0.0085 0.2159	0.0093 0.2362	0.0118 0.2997
7.0866 180	7.8740 200	0.0010 0.0254	0.0037 0.0940	0.0026 0.0660	0.0053 0.1346	0.0049 0.1245	0.0077 0.1956	0.0065 0.1651	0.0092 0.2337	0.0102 0.2591	0.0123 0.3124
7.8740 200	8.8583 225	0.0012 0.0305	0.0041 0.1041	0.0030 0.0762	0.0059 0.1499	0.0055 0.1397	0.0085 0.2159	0.0071 0.1803	0.0100 0.2540	0.0014 0.0356	0.0144 0.3658
8.8583 225	9.8425 250	0.0016 0.0406	0.0045 0.1143	0.0035 0.0889	0.0065 0.1651	0.0061 0.1549	0.0090 0.2286	0.0081 0.2057	0.0110 0.2794	0.0126 0.3200	0.0156 0.3962
9.8425 250	11.0236 280	0.0018 0.0457	0.0049 0.1245	0.0039 0.0991	0.0071 0.1803	0.0069 0.1753	0.0100 0.2540	0.0090 0.2286	0.0122 0.3099	0.0140 0.3556	0.0171 0.4343
11.0236 280	12.4016 315	0.0020 0.0508	0.0052 0.1321	0.0043 0.1092	0.0077 0.1956	0.0077 0.1956	0.0110 0.2794	0.0100 0.2540	0.0134 0.3404	0.0157 0.3988	0.0191 0.4851
12.4016 315	13.9764 355	0.0022 0.0559	0.0057 0.1448	0.0049 0.1245	0.0085 0.2159	0.0085 0.2159	0.0120 0.3048	0.0110 0.2794	0.0146 0.3708	0.0173 0.4394	0.0209 0.5309
13.9764 355	15.7480 400	0.0026 0.0660	0.0063 0.1600	0.0055 0.1397	0.0093 0.2362	0.0096 0.2438	0.0134 0.3404	0.0126 0.3200	0.0163 0.4140	0.0197 0.5004	0.0234 0.5944
15.7480 400	17.7165 450	0.0028 0.0711	0.0075 0.1905	0.0061 0.1549	0.0108 0.2743	0.0106 0.2692	0.0153 0.3886	0.0140 0.3556	0.0179 0.4547	0.0219 0.5563	0.0266 0.6756
17.7165 450	19.6850 500	0.0033 0.0838	0.0081 0.2057	0.0071 0.1803	0.0118 0.2997	0.0118 0.2997	0.0165 0.4191	0.0155 0.3937	0.0202 0.5131	0.0244 0.6198	0.0291 0.7391



Radial Engineering Section continued

The resultant bearing internal radial clearance after mounting and with the bearing in operation will differ from the unmounted clearance due to:

1. The press fit between the shaft and inner race and/or a press fit between the housing and outer race, each resulting in an internal clearance reduction.
2. An increase in the temperature of the inner race over that of the outer race, which will result in a reduction of internal clearance. Conversely, an increase in temperature of the outer race over that of the inner race may result in increased internal clearance.

The formula for the resultant internal clearance of the bearing after mounting and in operation is:

$$S_r = [S_0 - (S_1 \pm S_2 - S_3 \pm S_x)] \geq 0$$

Where:

S_r = Resultant clearance - .0001 in.

S_0 = Initial (unmounted) clearance

S_1 = Clearance reduction due to interference fits

S_2 = Clearance reduction, or increase, due to race temperature differential

S_3 = Clearance increase due to load

S_x = Clearance reduction, or increase, due to high rotational speed or any other effects

Determination of terms S_1 through S_x is described in the following paragraphs.

The clearance reduction due to fit is the sum of the effective inner race expansion, a , and the effective outer race contraction, b , under given press fit conditions (shaft and housing fits).

$$S_1 = a + b (.0001")$$

Where a and b are as follows:

- a = expansion of the inner race is estimated; (interference fit) X .75
- b = contraction of the outer race is estimated; (interference fit) X .85

And assumes the application has

1. solid shaft
2. rigid housing

In the case of a hollow shaft, and/or flexible housing, Application Engineering should be consulted for resultant fits.

Operating conditions normally will not be so unusual that other clearance effects (S_x) must be considered. However, unusual cases do occur. It is suggested that Application Engineering be consulted when conditions may exist which warrant consideration of clearance changes (S_x) that are not covered by terms S_1 , S_2 , and S_3 .



Radial Engineering Section continued

Limiting Speed

The limiting speed of a roller bearing is the rotational speed at which it may be operated based on geometry, retainer construction, lubricant and lubrication method without incurring a temperature rise within the bearing which would cause lubricant breakdown, softening of components, or seizure. The criterion used is the dn value where d equals the bearing pitch diameter (mm) and n equals the bearing rotation speed (rpm). The dn numbers applying to specific retainers are provided in the table below. To calculate the bearing limiting speed, one can divide the dn number by the bearing pitch diameter in mm to obtain the bearing limiting speed in rpm. This dn number provides the suggested safe limiting speeds for cylindrical radial roller bearings with various types of retainer construction based on recirculating oil lubrication with a lubricant of adequate viscosity.

Rollway Limiting Speed Factors

Retainer Type	dn Factor
Full roller complement	240000
Stamped Steel	380000
Segmented Steel	700000
Two-Piece Brass	700000
One-Piece Land Riding	1400000

In the selection of a retainer design for obtaining the highest practical roller bearing operating speed, it is often necessary to consider other factors than speed alone. For example, a two-piece drilled retainer might be selected over a segmented retainer where the torsional loading on the retainer is severe even though the segmented type appears adequate with respect to speed. It should be noted that suggested limiting speeds are provided for the standard roller-riding retainers (segmented, two-piece drilled and window-type stamped steel) and one-piece land riding retainers. Special retainer designs for each of these types permit higher operating speeds and are available upon request.

When using the table above, the following guidelines should be followed:

- For grease lubricant applications, use 80% of the calculated limiting speed.
- For air-oil mist lubricant applications, use 150% of the calculated limiting speed.
- For fixed volume of non-recirculated oil, use 85% of the calculated limiting speed.
- For double width and multi-row designs, use 67% of the calculated limiting speed.



Radial Engineering Section continued

Radial Bearing Axial Load Capacity

Cylindrical roller bearings that contain flanges on both the inner and outer rings are able to support axial loads in addition to radial loads. The axial load capability is determined through a consideration of the sliding friction and resultant wear taking place between the roller ends and flange faces. The factors having the greatest effect on this sliding friction are the bearing lubrication, operating temperature, and heat dissipation from the bearing.

Radial dynamic capacity is determined through a consideration of the fatigue strength of the bearing material. Thrust capacity is determined through a consideration of the sliding friction and resultant wear taking place between the roller ends and flange faces. Heat generated by the sliding friction must be effectively dissipated throughout the bearing components and by the lubricant in order to maintain thermal equilibrium at a reasonable temperature. The advantage of the cylindrical roller bearing under combined radial and thrust loads is apparent when it is observed that the radial load and the thrust load are taken by two different surfaces. In view of this, there should be no reduction in expected life, which is determined solely by the existing radial load, when thrust load are taken by the bearing.

Thrust capacity is dependent upon bearing design and application characteristics. Bearing design characteristics include:

- a. Apparent contact area between rollers ends and mating flange surfaces.
- b. Surface finish of the mating surfaces.
- c. Geometry of the mating surfaces.
- d. Internal radial clearance and axial clearance of the roller in the roller track.

Application characteristics are a function of:

- a. Sliding velocity at the contact surfaces (rpm and bearing size)
- b. Quality and quantity of the lubricant and effectiveness of the lubrication system.
- c. Type and duration of thrust loads.
- d. Influence of the shaft and housing in heat dissipation
- e. Operating temperatures.

A radial bearing should not be used in applications where there are essentially large thrust loads with no significant radial loads. In most applications, machine masses are of sufficient magnitude to apply a substantial radial load on the bearing without external radial forces. In these cases there will be sufficient radial load to allow satisfactory operation under substantial thrust loads. As a general rule, Rollway radial bearing thrust capacity is 10% of the published radial bearing dynamic rating.

Lubrication

In general, the required viscosity for the lubricant on cylindrical radial bearings is 110 SSU at operating temperature. For further information in regards to bearing lubrication, please refer to page A-17 of this catalog.